EPA'S RECORD OF DECISION ON REVISIONS TO MINNESOTA'S WATER QUALITY STANDARDS
(Minn. R. ch. 7050 and 7053)[1]
Adopted March 10, 2008

May 23, 2008

CONTENTS

1 This submission is also documented and all electronic files are maintained in the Region 5 Water Quality Standards Tracking System (WQSTS) as submission number: MN2008-229. The proposed rules are documented as submission number: MN2004-63.

I. INTRODUCTION

Minnesota adopted revisions to their water quality standards rules on March 10, 2008 and submitted them to EPA Region 5 for approval with a letter dated March 21, 2008. The submission package included a letter from the State's Attorney General's office certifying that the standards were duly adopted pursuant to State law. Receipt of the revised standards on March 25, 2008 initiated EPA's review pursuant to §303(c) of the Clean Water Act (CWA). These revisions pertained to the State's rules governing water quality: Minnesota Rules, Chapter 7050 (Water Quality Standards for Protection of Waters of the State); Addition of Chapter 7053 (Effluent Limits and Treatment Requirements for Discharges to Water of the State); Repeal of Parts 7056.0010 to 7056.0040 (Classification for Use and Standards for Select Reaches of the Mississippi River and its Stream Tributaries); and repeal of Parts 7065.0010 to 7065.0260 (Specific Effluent Limits for Selected Watersheds).

This record of decision documents the basis for EPA's actions on the submitted State WQS rule revisions. **Part I** provides an introduction that includes the State's submittal and EPA review requirements under the Clean Water Act (CWA) and the EPA's consultation requirements under the Endangered Species Act (ESA). **Part II** provides a summary of the rule revisions adopted by the State, the history of the rulemaking, and the basis and reasons for the State's development and adoption of these rules. **Part III** contains a description of EPA actions. Where needed, some of these actions are described in detail in Section C of this part.

A. EPA's review for consistency with the Clean Water Act and federal regulations:

Water quality standards requirements under CWA Sections 101(a)(2), 118, and 303(c)(2) are implemented through federal regulations contained in 40 CFR Part 131 and 40 CFR Part 132. Federal regulations at 40 CFR §131.21 require EPA to review and approve or disapprove new and revised water quality standards adopted by states and tribes. This authority has been delegated to the ten EPA Regional Administrators and, in Region 5, further delegated to the Director of the Water Division. In making this determination, EPA must consider the following requirements of 40 CFR §131.5.

- Whether state-adopted uses are consistent with CWA requirements;
- Whether the state had adopted criteria protective of the adopted uses;
- Whether the state has followed legal procedures for revising its standards;
- Whether state standards are based on appropriate technical and scientific data and analyses;
- Whether the state's submission includes certain basic elements as specified in 40 CFR §131.6, including use designations that are consistent with the provisions of Sections 101(a)(2) and 303(c)(2) of the CWA; and,
- Whether the state submission meets the requirements of 40 CFR Part 132.

Several of the revisions made to the Minnesota rules in Minn. R. ch. 7050 and 7053 do not constitute new or revised WQS. As such, EPA is not required under Section 303(c) of the CWA to review and approve such changes. The summary table presented in Part III.A of this document contains all of the

changes being made to the Minnesota rules including those that are not considered changes to WQS or are non-substantive wording revisions that don't change meaning. These revisions are noted as "No EPA Action" in the summary table and are not discussed further.

B. EPA's consultation requirements under the Endangered Species Act

Consistent with Section 7(a)(2) of the Endangered Species Act (ESA), 16 U.S.C. §1536(a)(2), and Federal regulations at 50 CFR Part 402, EPA is generally required to consult with the U.S. Fish and Wildlife Service (FWS) and/or the National Oceanic and Atmospheric Administrations Fisheries Service (for marine species), on EPA actions that may affect federally-listed threatened or endangered species or designated critical habitat (generally referred to as "listed species" in the remainder of this document). EPA's approval of new and revised State WQS under Section 303 of the CWA is generally an action requiring consultation where such approvals may affect listed species or designated critical habitat.

EPA's initial contact with the FWS regarding consultation on the Minnesota's WQS rule revisions was in March 2006. In a May 15, 2008 letter, EPA re-initiated informal consultation on EPA's review of Minnesota's WQS and will continue to work with the FWS until consultation is completed. EPA's approval of some of the provisions identified below of the State's WQS, therefore, is subject to the results of consultation under Section 7(a)(2) of the ESA. Nevertheless, EPA also has a CWA obligation, as a separate matter, to complete its WQS approval action. Therefore, in approving the WQS revisions today, EPA is completing its CWA §303(c) responsibilities.

EPA believes that proceeding with our approval actions pending completion of consultation is consistent with Section 7(d) of the ESA. EPA's approval decisions do not foreclose either the formulation by the FWS, or the implementation by EPA, of any alternatives that might be determined in the consultation to be needed to comply with section 7(a)(2). By approving the standards subject to the result of consultation under Section 7(a)(2) of the ESA, EPA has explicitly stated that it retains its discretion to take appropriate action if the consultation identifies deficiencies in the standards requiring remedial action by EPA. EPA retains the full range of options available under Section 303(c) of the CWA for ensuring WQS are environmentally protective. EPA can, for example, work with Minnesota to ensure that Minnesota revises its standards as needed to ensure listed species protection, initiate rulemaking to promulgate federal standards to supersede Minnesota's standards or, in appropriate circumstances, change EPA's approval to disapproval. Moreover, EPA believes that approval of the State's WQS revisions summarized below will not result in any impacts of concern prior to the conclusion of consultation.

Today's actions include a finding that EPA's approval of certain elements of the revised WQS will have no effect on listed species. For these revisions, no consultation with FWS is required. As explained above, however, EPA does have ESA responsibilities for the remaining revisions. As a result, the discussion below covers two categories of revisions: (1) revisions approved without condition, and (2) those that are approved, subject to ESA consultation.

II. SUMMARY OF SUBMITTED WQS RULE REVISIONS

A. Description of the rule revisions

Minnesota's WQS rulemaking contained several significant new and revised provisions to the state's WQS rules. In addition, rule language changes and a reorganization of several portions of the rules were made to remove redundancy and provide more clarity. Minn. R. ch. 7050 was revised in several areas and a new rule Minn. R. ch. 7053 was created to consolidate portions of Minn. R. 7056.0010 to 7056.0040 and Minn. R. 7065.0010 to 7056.0260 which were subsequently repealed.

The major proposed WQS rule additions and revisions being made by Minnesota in this rulemaking include the following. A more detailed listing of all changes can be found later in this document.

- The addition of eutrophication (phosphorus, chlorophyll-a and Secchi depth) standards for lakes, shallow lakes, and reservoirs;
- Phosphorus effluent limit for new or expanding dischargers that discharge more than 1,800 pounds of phosphorus per year;
- Adoption of a Class 2 fish tissue standard for mercury;
- Adoption of a Class 2 standards for acetochlor and metolachlor;
- Adoption of revised Class 2 standards for benzene and naphthalene;
- Adoption of *E. coli* to replace the Class 2 and Class 7 fecal coliform water quality standard;
- Change the default classification for industrial use from Class 3B to 3C, which will relax the industrial use chloride and hardness standards for most surface waters;
- Update lists of trout waters and Class 1 drinking waters and make other improvements to classification sections;
- Adoption of 12 new Class 7 limited resource value water segments;
- Separation of Minn.R.ch 7050 into two rules, a revised Minn.R.ch.7050 and a new Minn.R.ch.7053 and subsequent repeal of Minn.R.ch.7056 and 7065
- Numerous changes to clarify language in Minn.R.ch.7050 and 7053 without changing the meaning;
- Other miscellaneous major or substantive changes to rule language in Minn.R.ch.7050; and
- Numerous housekeeping changes.

B. Rule development and submittal history

Beginning as early as the winter of 2003 MPCA staff began meeting with interested parties to discuss plans for the revision of water quality standards. These meetings occurred periodically through 2007 and included environmental groups, industry groups and coalitions, state agencies, local groups, and other MPCA departments.

The MPCA published two notices in the *State Register* asking for comments and opinions on the Agency's planned amendments to water quality standards. The first notice was published on November

10, 2003, (28 SR 614). This notice listed the major items under consideration by the MPCA for the revision and invited any person to comment on these plans. Comments were also solicited on any aspect of Minn. R. ch. 7050 and 7052. The public comment period associated with this notice ran from Nov. 10 to Dec. 31, 2003. Copies of the *State Register* notice with a general cover letter were mailed to about 60 parties on MPCA's interested party list.

The second notice in the *State Register* was published on May 17, 2004, (28 SR 1464). This notice narrowed the scope of the planned revision and described those plans in more detail. It also announced the MPCA's plans to hold a series of informal public meetings around the state. The dates, times and locations of seven public meetings planned for June, 2004, were published in this notice. The comment period associated with this notice ran from May 17 through June 30, 2004. Copies of the *State Register* notice with a general cover letter were mailed to about 60 parties on MPCA's interested party list.

The Agency scheduled and hosted a series of public meetings in June, 2004, to provide interested members of the public an opportunity to learn about the proposed revision, and to provide comments and ask questions. A summary of MPCA response to the comments received can be found in the Statement of Need and Reasonableness (SONAR)[2] Book I Section I.E., pp. 19-21. During this time, the Region provided comments and technical assistance, through telephone calls, conference calls and emails. The Region provided comments in writing on December 19, 2005.

The MPCA published a Public Notice of the proposed rule amendments in the Minnesota *State Register* on July 23, 2007 and again on July 30, 2007. This notice included the availablility of the (SONAR Books I, II, and III) date July 2007. In addition, these SONAR Books reference approximately 325 exhibits and were made available upon request. A series of public hearings were held throughout the state from August 29, 2007 to September 12, 2007. The comment period ended on October 3, 2007. The MPCA provided a response to comments on October 3, 2007 and on October 10, 2007. The Region provided comments to the State on October 3, 2007. The Administrative Law Judge filed a report dated November 16, 2007. The proposed rule amendments were approved by the Office of the Revisor of Statutes and adopted by the MPCA Citizens' Board on December 18, 2007. The Order Adopting Rules was signed by the MPCA Commissioner on December 18, 2007. The Notice of final adoption of the rules was published in the Minnesota *State Register* on March 10, 2008.

C. Basis for State rulemaking

The MPCA's authority to adopt water quality standards and to classify waters of the state is found in Minn. Stat. § 115.03 (2006), particularly subdivisions 1(b) and 1(c). Subdivision 1(b) authorizes the

2 The MPCA is required by the Minnesota Administrative Procedurea Act (Minn. Stat. ch. 14) to address certain questions, primarily of need and reasonableness, of any new regulation. Due to the extent and complexity of the rule revisions, the SONAR documentation was divided into three books.

Agency to classify waters, while subdivision 1(c) authorizes the MPCA to "establish and alter such reasonable pollution standards for any waters of the state in relation to the public use to which they are or may be put as it shall deem necessary for the purposes of this chapter and, with respect to the pollution of waters of the state, chapter 116…"

Additional authority for adopting standards is established under Minn. Stat. § 115.44, subd. 2 and 4. Subdivisions 2 and 4. Under these statutory provisions, the MPCA has the necessary authority to adopt these WQS rules.

III. EPA ACTIONS:

This section is organized in the following way. **Section A** provides a summary table that cites all rule changes being made along with a summary of these changes and EPA's actions regarding the changes. Certain EPA actions required a more detailed rationale than could fit into this summary table. In these cases, the more detailed rationale discussion is provided in Sections B and/or C. **Section B** contains excerpts from the tables found in Minn. R. ch. 7050.0220 and 7050.0222 that list the specific criteria that apply to the various use classes. EPA's actions regarding these changes are inserted into this table where possible (i.e., where a more detailed explanation is not needed). **Section C** provides a discussion of those rule changes that require a more detailed explanation of the reasons behind EPA's action.

Possible EPA actions include:

- **Approval** (where EPA has concluded that approval of certain revisions will have no effect on listed species, or is otherwise not subject to ESA consultation),
- **Approval subject to ESA consultation** (where EPA has concluded that certain revisions may effect listed species (including beneficial effects)),
- **Disapproval** (where EPA has concluded that certain revisions do not meet the requirements of the CWA or federal regulations and guidance), and
- **No EPA action** (where EPA has concluded that certain revisions are not revisions to the State's WQS and therefore do not need to be reviewed under Section 303(c) of the CWA, or that the revisions are non-substantive and do not change the meaning or implementation of the State's WQS. In these cases, the state-adopted provisions do not need EPA approval to become "applicable standards for CWA purposes" [see 40 CFR §131.21]).

A. Overview summary of all rule revisions and EPA actions

The table below provides a comprehensive listing of all rule changes (to Minn. R. ch. 7050) and the EPA actions being taken (approval, approval subject to the completion of ESA consultation, and no action). Items requiring a lengthier discussion than could fit in the table appear as shaded rows and are discussed in more detail after the table in Sections B and C..

Minnesota Rule Citation	Summary Description of Rule Change	EPA Action and Comments
7050.0110 Scope	Revised description of the scope that applies to Chapter 7050. These revisions help clarify the scope of this chapter and also to indicate that the effluent limits and treatment requirements parts were moved to a separate Chapter 7053.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify the scope of the rules and their organization. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA..
7050.0130 General Definitions	Subp. 3. Added definition for "Seven-day ten-year low flow" and deleted/moved definition for "Wetlands" to 7050.0186	**No EPA Action**. This new definition was inadvertently omitted from the State's rules but has been used in program implementation for years. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA..
	Subp. 5. Deleted definition of "physical alteration". Consolidated with other wetlands-related language in 7050.0186.	**No EPA Action**. Non-substantive reorganization of rule language. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA..
	Subp. 6. Deleted definition of "Wetlands". Consolidated with other wetlands-related language in 7050.0186.	**No EPA Action**. Non-substantive reorganization of rule language. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA..
7050.0140 Use Classifications for Waters of the State	Additional introductory language was added to Subpart 1.	**No EPA Action**. Non-substantive language changes to clarify rules. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0150 Determination of Water Quality, Biological and Physical Conditions, and Compliance with Standards	Additional definitions added to Subpart 4. Subpart 4. A. "122-day ten-year low flow" or "122Q10". New definition.	**Approved**. New definition to clarify term used in other sections of the rules. These definitions are consistent with Federal regulations, EPA guidance and current science.
	Subpart 4. E. "Eutrophication". New definition.	**Approved**. New definition to clarify term used in other sections of the rules. This definition is consistent with Federal regulations, EPA guidance and current science.

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	Subpart 4. F. "Fish and other biota" and "lower aquatic biota". New definitions.	**Approved**. New definition to clarify term used in other sections of the rules. These definitions are consistent with Federal regulations, EPA guidance and current science.
	Subpart 4. J. "Lake". New definition.	**Approved**. New definition to clarify term used in other sections of the rules. This definition is consistent with Federal regulations, EPA guidance and current science.
	Subpart 4.M. "Measurable increase" or "measurable inpact". New definition	**Approved**. New definition to clarify term used in other sections of the rules. This definition is consistent with Federal regulations, EPA guidance and current science.
	Subpart 4. N. "Natural causes". New definition.	**Approved**. New definition to clarify term used in other sections of the rules. This definition is consistent with Federal regulations, EPA guidance and current science.
	Subpart 4. R. "Reservoir". New definition.	**Approved**. New definition to clarify term used in other sections of the rules. This definition is consistent with Federal regulations, EPA guidance and current science.
	Subpart 4. U. "Shallow lake". New definition.	**Approved**. New definition to clarify term used in other sections of the rules. This definition is consistent with Federal regulations, EPA guidance and current science.
7050.0185 Nondegradation for all Waters	Revisions made to the policy description in Subpart 1 and the minimum treatment description in Subpart 3.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify the rules and their organization. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0186 Wetland Mitigation	Revisions made to the policy and wetland beneficial uses description in Subpart 1. The wetlands definition from 7050.0130 was added to Subpart 1a and the Wetland pollution prohibited subpart from 7050.0210, Subp. 13a was moved to 7050.0186, Subp. 1b.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify and reorganize the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0190 Variance from	Minor language changes	**No EPA Action**. These changes are non-

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Standards		substantive rule language revisions that clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0200 Water Use Classifications for Waters of the State	This entire Part was removed from Chapter 7050 because it is redundant of the use classification descriptions in Part 7050.0140	**No EPA Action**. These changes are non-substantive rule language revisions that merely reorganize the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 1. Untreated sewage	This subpart was deleted from Chapter 7050 since it applies to effluent limits and appears in Chapter 7053.	**No EPA Action**. These changes are non-substantive rule language revisions that merely reorganize the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 3. Inadequate treatment.	This subpart was deleted from Chapter 7050 since it applies to effluent limits and appears in Chapter 7053.	**No EPA Action**. These changes are non-substantive rule language revisions that merely reorganize the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 4. Highest levels of water quality.	Minor language changes.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 5. Mixing zones	Wording changes were made to this subpart to make it consistent with Chapter 7053.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 6c. Other requirements	Wording changes were made to this subpart to make it consistent with Chapter 7053.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify the rules. EPA notes the appropriateness of these rule revisions,

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preserved		however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 7. Minimum stream flow.	Wording changes and deletions were made to make use of the new definition of 7Q10 low flow that was added to Part 7050.0130.	**No EPA Action**. These changes are non-substantive rule language revisions that clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0210 General Standards for Waters of the State. Subpart 13a. Wetland pollution prohibited.	This subpart was deleted and incorporated into 7050.186.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
Part 7050.0211, 7050.0212, 7050.0213, 7050.0215, and 7050.0216	These parts were moved in their entirety to proposed Chapter 7053.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0217. Objectives for Protection of Surface Waters from Toxic Pollutants. Subpart 1. Purpose and applicability.	Language corrections/revisions to clarify rule.	**No EPA Action**. These changes are non-substantive rule language revisions made to clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0218 Methods for Determination of Criteria for Toxic Pollutants for which Numeric Standards Not Promulgated. Subparts 1 and 2.	Language corrections/revisions to clarify rule.	**No EPA Action**. These changes are non-substantive rule language revisions made to clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0218 Subpart 3. Definitions.	D. "Bioaccumulation factor". Revised definition.	**No EPA Action**. Definition revised to clarify term used in other sections of the rules. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA.

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	H. "Chronic Criterion". Revised definition.	**No EPA Action**. Definition revised to clarify term used in other sections of the rules. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Q. "K value". Deleted definition. This revision makes the Minnesota rules consistent with EPA terminology and subsequent changes made to 7050.0218, Subp. 6.	**No EPA Action**. Definition deleted to make consistent with changes made to Subpart 6 and with current EPA terminology. EPA notes the appropriateness of this rule revision, however, it does not constitute a new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	AA. "Relative source contribution factor". Added definition.	**Approved**. New definition to clarify term used in other sections of the rules and make the rule language consistent with EPA terminology. This definition is consistent with Federal regulations, EPA guidance and current science.
7050.0218 Subpart 4. Adoption of USEPA national criteria.	Language corrections/revisions to clarify rule.	**No EPA Action**. These changes are non-substantive rule language revisions made to clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0218 Subpart 6. Human health-based criteria.	Modified criteria formula for non-carcinogens to remove K value and replace with RSC. This revision makes the Minnesota rules consistent with EPA terminology.	**No EPA Action**. These changes are non-substantive rule language revisions made to clarify the rules and make consistent with current EPA terminology. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	E. Revised language to remove reference to K value and replace with RSC. This revision makes the Minnesota rules consistent with EPA terminology.	**No EPA Action**. These changes are non-substantive rule language revisions made to clarify the rules and make consistent with current EPA terminology. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 1. Purpose and scope.	Language revisions.	**No EPA Action**. These changes are non-substantive rule language revisions made

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		to clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 2. Explanation of tables.	Language revisions. Added more detailed explanation of applicability of SDWA standards to Class 1 waters.	**No EPA Action**. These changes are non-substantive rule language revisions made to clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 3a. Cold water sport fish, drinking water and associated use classes. A. Miscellaneous Substance, Characteristics or Pollutant.	New and revised standards for Bromate, Chlorite, and Turbidity. New standard for *E. coli* New standards for eutrophication.	**Approved.** Actual rule language changes and discussion of approval action can be found in Section B below **Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this action can be found in Section C below. **Approved subject to ESA consultation..** Actual rule language changes can be found in Section B below and a more detailed explanation for the basis for this action can be found in Section C below.
7050.0220, Subpart 3a. B. Metals and Elements.	Revision made to Arsenic standard. New fish tissue-based standard for Mercury. Reorganization of standards language pertaining to the hardness dependency formalae for Cadmium, Chromium+3, Copper, Lead, Nickel, Silver and Zinc from table notes to directly in the table itself. The standards themselves for these metals were not changed.	**Approved.** Actual rule language changes and discussion of approval action can be found in Section B below **Approved**. Actual rule language changes can be found in Section B below and a more detailed explanation for the basis for this action can be found in Section C below. **No EPA action.** The rule reorganization changes for these criteria are shown and discussed in Section B below.
7050.0220, Subpart 3a C. Organic Pollutants or Characteristics.	New and revised standards for Haloacetic Acids and Trihalomethanes. Revised standards for Benzene and	**Approved.** Actual rule language changes and discussion of EPA action can be found in Section B below. **Approved subject to ESA consultation.**

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	Naphthalene.	Actual rule language changes and discussion of EPA action can be found in Section B below and a detailed explanation for the basis for EPA's action can be found in Section C below.
	Reorganization of standards language pertaining to the pH dependency formula for Pentachlorophenol from table notes to directly into the table itself. The standard for Pentachlorophenol was not changed.	**No EPA action.** Actual rule language changes and discussion of EPA action can be found in Section B below.
	New standards for Acetochlor and Metolachlor.	**Approved subject to ESA consultation.** Revisions to these criteria are also listed in Section B below and a more detailed explanation for the basis for EPA's action can be found in Section C below.
7050.0220, Subpart 3a. D. *Escherichia (E.) coli* bacteria.	Replacement of the current fecal coliform standard with a new *E. coli* standard..	**Approved**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this approval decision can be found in Section C below.
7050.0220, Subpart 3a. E. Radioactive materials.	Added this section from a deleted Note 2 and added references to 7050.0221 subpart 2, 7050.0222 subpart 2, 7050.0224 subparts 2 and 3.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 3a. Notes 3-10	Deleted and moved to 7050.0221	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 4a. Notes	Deleted since they were incorporated directly into the table.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subp. 4a.	New and revised standards for Bromate,	**Approved.** Actual rule language changes

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Cool and warm water sport fish, drinking water and associated use classes. A. Miscellaneous Substance, Characteristic or Pollutant.	Chlorite, and Turbidity.	and discussion of approval action can be found in Section B below
	New standard for *E. coli*	**Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this action can be found in Section C below.
	New standards for eutrophication.	**Approved subject to ESA consultation..** Actual rule language changes can be found in Section B below and a more detailed explanation for the basis for this action can be found in Section C below.
7050.0220, Subpart 4a. B. Metals and Elements.	Revision made to Arsenic standard.	**Approved.** Actual rule language changes and discussion of approval action can be found in Section B below
	New fish tissue-based standard for Mercury.	**Approved**. Actual rule language changes can be found in Section B below and a more detailed explanation for the basis for this action can be found in Section C below.
	Reorganization of standards language pertaining to the hardness dependency formalae for Cadmium, Chromium+3, Copper, Lead, Nickel, Silver and Zinc from table notes to directly in the table itself. The standards themselves for these metals were not changed.	**No EPA action.** The rule reorganization changes for these criteria are shown and discussed in Section B below.
7050.0220, Subpart 4a C. Organic Pollutants or Characteristics.	New and revised standards for Haloacetic Acids and Trihalomethanes.	**Approved.** Actual rule language changes and discussion of EPA action can be found in Section B below.
	Revised standards for Benzene.	**Approved subject to ESA consultation.** Actual rule language changes and discussion of EPA action can be found in Section B below and a detailed explanation for the basis for EPA's action can be found in Section C below.
	Reorganization of standards language pertaining to the pH dependency formula for Pentachlorophenol from table notes to directly into the table itself. The standard for Pentachlorophenol was not changed.	**No EPA action.** Actual rule language changes and discussion of EPA action can be found in Section B below.
	New standards for Acetochlor and	**Approved subject to ESA consultation.**

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	Metolachlor.	Revisions to these criteria are also listed in Section B below and a more detailed explanation for the basis for EPA's action can be found in Section C below.
7050.0220, Subpart 4a. D. *Escherichia (E.) coli* bacteria.	Replacement of the current fecal coliform standard with a new *E. coli* standard..	**Approved**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this approval decision can be found in Section C below.
7050.0220, Subpart 4a. E. Radioactive materials.	Added this section from a deleted Note 2 and added references to 7050.0221 subpart 2, 7050.0222 subpart 2, 7050.0224 subparts 2 and 3.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 4a, F.	Changed Note No. 3 to subparagraph F regarding temperature.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 4a. Notes 4-11	Deleted and moved to 7050.0221	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 5a. Notes	Deleted since they were incorporated directly into the table.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subp. 5a. Cool and warm water sport fish and associated use classes. A. Miscellaneous Substance, Characteristic or	New and revised standards for Bromate, Chlorite, and Turbidity. New standard for *E. coli*	**Approved.** Actual rule language changes and discussion of approval action can be found in Section B below **Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this

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Pollutant.		action can be found in Section C below.
	New standards for eutrophication.	**Approved subject to ESA consultation..** Actual rule language changes can be found in Section B below and a more detailed explanation for the basis for this action can be found in Section C below.
7050.0220, Subpart 5a. B. Metals and Elements.	Revision made to Arsenic standard.	**Approved.** Actual rule language changes and discussion of approval action can be found in Section B below
	New fish tissue-based standard for Mercury.	**Approved**. Actual rule language changes can be found in Section B below and a more detailed explanation for the basis for this action can be found in Section C below.
	Reorganization of standards language pertaining to the hardness dependency formalae for Cadmium, Chromium+3, Copper, Lead, Nickel, Silver and Zinc from table notes to directly in the table itself. The standards themselves for these metals were not changed.	**No EPA action.** The rule reorganization changes for these criteria are shown and discussed in Section B below.
7050.0220, Subpart 5a C. Organic Pollutants or Characteristics.	New and revised standards for Haloacetic Acids and Trihalomethanes.	**Approved.** Actual rule language changes and discussion of EPA action can be found in Section B below.
	Revised standards for Benzene.	**Approved subject to ESA consultation.** Actual rule language changes and discussion of EPA action can be found in Section B below and a detailed explanation for the basis for EPA's action can be found in Section C below.
	Reorganization of standards language pertaining to the pH dependency formula for Pentachlorophenol from table notes to directly into the table itself. The standard for Pentachlorophenol was not changed.	**No EPA action.** Actual rule language changes and discussion of EPA action can be found in Section B below.
	New standards for Acetochlor and Metolachlor.	**Approved subject to ESA consultation.** Revisions to these criteria are also listed in Section B below and a more detailed explanation for the basis for EPA's action can be found in Section C below.
7050.0220, Subpart 5a. D. *Escherichia (E.) coli*	Replacement of the current fecal coliform standard with a new *E. coli* standard..	**Approved**. Actual rule language changes can be found in Section B below and a

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bacteria.		detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0220, Subpart 5a. E. Radioactive materials.	Added this section from a deleted Note 2 and added references to 7050.0221 subpart 2, 7050.0222 subpart 2, 7050.0224 subparts 2 and 3.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 5a, F.	Changed Note No. 6 to subparagraph F regarding temperature.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 5a. Notes 2,4,7-14	Deleted and moved to 7050.0221	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 6a. Limited resource value waters and associated use classes. A. Water quality standards applicable to use Classes 3C, 4A and 4B, 5 and 7.	Made criteria additions (*see E. coli* discussion below) and other language revisions.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0220, Subpart 6a. A.(4) *Escherichia (E.) coli* bacteria and Subpart 6a (B).	Deleted Note No. 1 and added new text regarding new *E. coli* criteria.	**Approved**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0220, Subpart 7. Site-specific modifications of standards.	Text revisions for rule consistency and clarification.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.

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7050.0221. Specific Water Quality Standards for Class 1 Waters of the State; Domestic Consumption. Subpart 1. General	Added new paragraph regarding applicability of drinking water maximum contaminant levels (MCL).	**Approved.** The new rule language clarifies the applicability of Federal Safe Drinking Water Act MCLs for the protection of domestic consumption. This is consistent with EPA guidance as summarized in EPA's WQS Handbook.
7050.0221. Subpart 5. Class 1D waters.	Entire subpart deleted. Considering that no waters are or ever have been classified as Class 1D, this subpart is not necessary.	**No EPA Action**. These changes are non-substantive rule language revisions made clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0222. Specific Water Quality Standards for Class 2 Waters of the State; Aquatic Life and Recreation. Subpart 1. General	Rule language corrections and revisions for clarity. Moved definitions of acronyms and symbols used through this section.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
7050.0222. Subp. 2. Class 2A waters; aquatic life and recreation.	Deleted text explaining criteria tables and added reference to subpart 1 and explanation as notes to the tables.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Added criteria for acetachlor.	**Approved subject to ESA consultation.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Changed chronic value for benzene from 9.7 to 5.1 µg/L.	**Approved subject to ESA consultation.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of cadmium values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.

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	Removal of rule language that specified that for hardness values less than 10 mg/L, 10 mg/L shall be used to calculate the standard for cadmium and other hardness-dependent metals. This low-end hardness cap was part of the State's proposed rules and was removed in the adopted rules.	**No EPA Action.** Corrected rule language to remove the proposed low-end hardness cap and to make it consistent with EPA guidance. This change essentially reverts the rule language back to the current rule language and is therefore not a change to the State's WQS. The existing rule language was previously approved and is consistent with EPA guidance. See preamble discussion (p. 8) of *National Recommended Water Quality Criteria 2002* (EPA-822-R-02-047), November 2002.
	Reorganized existing rule requirements by adding a table of chromium+3 values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding a table of copper values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Insertion of text describing new *E. coli* criteria	**Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Insertion of text describing new eutrophication criteria.	**Approved subject to ESA consultation.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of lead values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Added fish tissue mercury criteria	**Approved.** Actual rule language changes

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		can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Added metolachlor criteria	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Changed chronic criteria for naphthalene from 81 to 65 µg/L.	**Approved subject to ESA consultation.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of nickel values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding a table of pentachlorophenol values calculated using a formula for various pH values.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding the minimum and maximum pH standards to table.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding a table of silver values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements	**No EPA Action**. These changes are non-

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	by adding a table of zinc values calculated using a formula for various hardness levels.	substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Added subpart 2a with Eutrophication standards for Class 2A lakes and reservoirs.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0222. Subp. 3. Class 2Bd waters		
	Added criteria for acetachlor.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Changed chronic value for benzene from 11 to 6.0 µg/L.	**Approved subject to ESA consultation.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of cadmium values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Removal of rule language that specified that for hardness values less than 10 mg/L, 10 mg/L shall be used to calculate the standard for cadmium and other hardness-dependent metals. This low-end hardness cap was part of the State's proposed rules and was removed in the adopted rules.	**No EPA Action.** Corrected rule language to remove the proposed low-end hardness cap and to make it consistent with EPA guidance. This change essentially reverts the rule language back to the current rule language and is therefore not a change to the State's WQS. The existing rule language was previously approved and is consistent with EPA guidance. See preamble discussion (p. 8) of *National Recommended Water Quality Criteria 2002* (EPA-822-R-02-047), November 2002.
	Reorganized existing rule requirements by adding a table of chromium+3 values	**No EPA Action**. These changes are non-substantive rule language revisions made

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	calculated using a formula for various hardness levels.	to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding a table of copper values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Insertion of text describing new *E. coli* criteria	**Approved**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Insertion of text describing new eutrophication criteria.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of lead values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Added fish tissue mercury criteria	**Approved**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Added metolachlor criteria	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Recalculated and retained the current naphthalene criteria of 81 µg/L.	**No EPA Action**. Although reviewed, no change is being made to this criterion. EPA notes the appropriateness of this criterion review, however, since the actual criterion is not being EPA approval under

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		Section 303(c) of the CWA is not required.
	Reorganized existing rule requirements by adding a table of nickel values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding a table of pentachlorophenol values calculated using a formula for various pH values.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding minimum and maximum pH standards to table.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding a table of silver values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA.
	Reorganized existing rule requirements by adding temperature criteria to table from notes.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding a table of zinc values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring

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		EPA approval under Section 303(c) of the CWA
	Added subpart 3a with Eutrophication standards for Class 2Bd lakes, shallow lakes, and reservoirs.	**Approved subject to ESA consultation.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0222. Subp. 4. Class 2B waters		
	Added criteria for acetachlor.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Changed chronic value for benzene from 114 to 98 µg/L.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of cadmium values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Removal of rule language that specified that for hardness values less than 10 mg/L, 10 mg/L shall be used to calculate the standard for cadmium and other hardness-dependent metals. This low-end hardness cap was part of the State's proposed rules and was removed in the adopted rules.	**No EPA Action.** Corrected rule language to remove the proposed low-end hardness cap and to make it consistent with EPA guidance. This change essentially reverts the rule language back to the current rule language and is therefore not a change to the State's WQS. The existing rule language was previously approved and is consistent with EPA guidance. See preamble discussion (p. 8) of *National Recommended Water Quality Criteria 2002* (EPA-822-R-02-047), November 2002.
	Reorganized existing rule requirements by adding a table of chromium+3 values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the

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		CWA
	Reorganized existing rule requirements by adding a table of copper values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Insertion of text describing new *E. coli* criteria	**Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Insertion of text describing new eutrophication criteria.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Reorganized existing rule requirements by adding a table of lead values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Added fish tissue mercury criteria	**Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Added metolachlor criteria	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
	Recalculated and retained the current naphthalene criteria of 81 µg/L.	**No EPA Action**. Although reviewed, no change is being made to this criterion. EPA notes the appropriateness of this criterion review, however, since the actual criterion is not being EPA approval under Section 303(c) of the CWA is not required.
	Reorganized existing rule requirements by adding a table of nickel values calculated using a formula for various	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA

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	hardness levels.	notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding a table of pentachlorophenol values calculated using a formula for various pH values.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding minimum and maximum pH standards to table.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding a table of silver values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding temperature criteria to table from notes.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Reorganized existing rule requirements by adding a table of zinc values calculated using a formula for various hardness levels.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
	Added subpart 4a with Eutrophication standards for Class 2B lakes, shallow lakes, and reservoirs.	**Approved subject to ESA consultation**. Actual rule language changes can be found in Section B below and a detailed

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		explanation for the basis for this EPA action can be found in Section C below.
7050.0222. Subp. 5. Class 2C waters		
	Insertion of text describing new *E. coli* criteria	**Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0222. Subp. 8. Site-specific modifications of standards.	This subparagraph was deleted and moved to 7050.0220 and application expanded from Class 2 waters to all use classes.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA .
7050.0222. Subp. 9. Conversion factors for dissolved metal standards.	Text revisions to include formulae directly in table instead of in table notes.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0223. Subp.2. Class 3A waters; industrial consumption.	Addition of pH minimum and maximum values instead of a range.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA .
7050.0223. Subp.3. Class 3B waters;.	Addition of pH minimum and maximum values instead of a range.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA .
7050.0223. Subp.4. Class 3C waters.	Addition of pH minimum and maximum values instead of a range.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring

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		EPA approval under Section 303(c) of the CWA .
7050.0224. Subpart 1. General	Language changes to clarify rules and adding reference to working with Minnesota Indian tribes.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA .
7050.0224. Subp. 2. Class 4A waters	Addition of pH minimum and maximum values instead of a range.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0224. Subp. 3. Class 4B waters	Addition of pH minimum and maximum values instead of a range.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0225, Subp. 2. Class 5 waters; aesthetic enjoyment and navigation.	Text revisions to add clarity and separate wetlands standards from non-wetlands.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0227. Subp 2. Class 7 waters; limited resource value waters.	Revisions to bacteria standards.	**Approved.** Actual rule language changes can be found in Section B below and a detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0430. UNLISTED WATERS.	Revised text to clarify rule organization and to change default industrial use class from 3B to 3C.	**Approved.** . A detailed explanation for the basis for this EPA action can be found in Section C below.
7050.0460. WATERS SPECIFICALLY CLASSIFIED; EXPLANATION OF LISTINGS IN PART	Text revisions for clarification.	**No EPA Action**. These changes are non-substantive rule language revisions made to reorganize and clarify the rules. EPA notes the appropriateness of these rule revisions, however, they do not

Minnesota Rule Citation	Summary Description of Rule Change	EPA Action and Comments
7050.0470.		constitute new or revised WQS requiring EPA approval under Section 303(c) of the CWA
7050.0470. CLASSIFICATION OF SURFACE WATERS IN MAJOR WATER DRAINAGE BASINS.	Several revisions and additions made to waterbody descriptions, locations, and designated classes.	**Approved subject to ESA consultation.** A detailed explanation for the basis for this EPA action can be found in Section C below.

B. New and revised numeric criteria excerpts from Minn. R. ch. 7050.0220 and 7050.0222.

The following are excerpts (markup version showing stikeout for word deletions and underline for new wording) from Minn. R. ch. 7050.0220 and 7050.0222. Below each new or revised criterion is a description of the EPA action. Where needed, Section C provides a more detailed discussion regarding the rationale for EPA's action.

7050.0220 Subpart 3a. Cold water sport fish, drinking water and associated use classes.

A. Miscellaneous Substance, ~~or~~ Characteristic or Pollutant.

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(4) Bromate, µg/L							
--	--	--	10	--	--	--	--
EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for bromate. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).							
(7) Chlorite, µg/L							
--	--	--	1000	--	--	--	--
EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for chlorite. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).							
(10) *Escherichia (E.) coli* bacteria, organisms/100 mL							
See item D	--	--	--	--	--	--	--
EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below.							

(11) Eutrophication standards for lakes and reservoirs (Phosphorus, total, µg/L; Chlorophyll-a, µg/L; Secchi depth transparency, meters).

See part
7050.0222, subparts 2 and 2a

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below.

(34) Turbidity, NTU

10	--	--	~~1~~ ~~5~~ NA	--	--	--	--

EPA Action: Approved. Consistent with added explanatory language in 7050.0220, Subp. 2 that describes what USEPA primary and secondary drinking water standards do not apply to Class 1 waters. Under the SDWA, turbidity is regulated as a "treatment technique" standard and although numeric limits are used in the public water supply program, there is no established relationship between these finished water limits and ambient turbidity levels.

B. Metals and Elements.

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(3) Arsenic, total, µg/L							
2.0	360	720	~~50~~ 10	--	--	--	--

EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for arsenic. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

(7) Cadmium, total, µg/L ~~See Note No. 3 below~~

1.1	3.9	7.8	5	--	--	--	--

Class 2A cadmium standards are hardness dependent. Cadmium values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate cadmium standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

(8) Chromium+3, total, µg/L ~~See Note No. 4 below~~

207	1,737	3,469	--	--	--	--	--

Class 2A trivalent chromium standards are hardness dependent. Chromium+3 values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate trivalent chromium standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

(12) Copper, total, µg/L ~~See Note No. 5 below~~

9.8	18	35	1,000(S)	--	--	--	--

Class 2A copper standards are hardness dependent; copper values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate copper standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

(14) Lead, total, µg/L ~~See Note No. 6 below~~

3.2	82	164	NA	--	--	--	--

Class 2A lead standards are hardness dependent; lead values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate lead standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table. The DC standard is consistent with added explanatory language in 7050.0220, Subp. 2 that describes what USEPA primary and secondary drinking water standards do not apply to Class 1 waters. Under the SDWA, lead is regulated as a "treatment technique" standard and there is no numeric MCL that can be referenced and used as an ambient water quality criterion.

(17) Mercury, total in edible fish tissue, mg/kg or parts per million

0.2	--	--	--	--	--	--	--

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below.

~~(17)~~(18) Nickel, total, µg/L ~~See Note No. 7 below~~

158	1,418	2,836	~~100(S)~~	--	--	--	--

Class 2A nickel standards are hardness dependent; nickel values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate nickel standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

~~(19)~~(20) Silver, total, µg/L ~~See Note No. 8 below~~

0.12	2.0	4.1	100(S)	--	--	--	--

Class 2A silver MS and FAVare hardness dependent; silver values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate silver standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

~~(21)~~(22) Zinc, total, µg/L ~~See Note No. 9 below~~

106	117	234	5,000(S)	--	--	--	--

Class 2A zinc standards are hardness dependent; zinc values shown are for a total hardness of 100 mg/L only. See part 7050.0222, subpart 2, for examples at other hardness values and equations to calculate zinc standards for any hardness value ~~between 10 and~~ not to exceed 400 mg/L.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

C. Organic Pollutants or Characteristics.

2A CS	2A MS	2A FAV	1B DC	3A/3B IC	4A IR	4B LS	5 AN
(2) Acetochlor, µg/L							
~~1.7~~ 3.6	86	173	--	--	--	--	--

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below.

~~(9)~~(10) Benzene (c), µg/L							
~~9.7~~ ~~5.4~~ 5.1	4487*	8974*	5	--	--	--	--

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below.

(43) Haloacetic acids (c), µg/L (Bromoacetic acid, Dibromoacetic acid, Dichloroacetic acid, Monochloracetic acid and Trichloroacetic acid)							
--	--	--	60	--	--	--	--

EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for haloacetic acids. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

(51) Metolachlor							
23	271	543	--	--	--	--	--

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below

~~(50)~~(52) Naphthalene, µg/L							
~~81~~ 65	409	818	--	--	--	--	--

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below

~~(52)~~(55) Pentachlorophenol, µg/L ~~See Note No. 10 below~~							
0.93	15	30	1	--	--	--	--

Class 2A MS and FAV are pH dependent. Pentachlorophenol values shown are for a pH of 7.5 only. See part 7050.0222, subpart 2, for examples at other pH values and equations to calculate pentachlorophenol standards for any pH value.

EPA Action: None. These criteria have not changed. They are being inserted into this table from the Notes section at the end of the table.

~~(70)~~(73) Trihalomethanes, total (c), µg/L (Bromodichloromethane, Bromoform, Chlorodibromomethane and Chloroform)

--	--	--	~~100~~ 80	--	--	--	--

EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for trihalomethanes. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

~~Note No. 1. FECAL COLIFORM ORGANISMS~~

D. *Escherichia (E.) coli* bacteria ~~Not to~~ shall not exceed ~~200~~ 126 organisms per 100 milliliters as a geometric mean of not less than five samples ~~in~~ representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed ~~400~~ 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

7050.0220 Subpart 4a. Cool and warm water sport fish, drinking water and associated use classes.

A. Miscellaneous Substance, ~~or~~ Characteristic or Pollutant.

2Bd CS	2Bd MS	2Bd FAV	1B/1C DC	3A/3B IC	4A IR	4B LS	5 AN
(4) Bromate, µg/L							
--	--	--	10	--	--	--	--

EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for bromate. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

(7) Chlorite, µg/L

--	--	--	1000	--	--	--	--

EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for chlorite. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

(10) *Escherichia (E.) coli* bacteria, organisms/100 mL

See item D -- -- -- -- -- -- --

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

(11) Eutrophication standards for lakes, shallow lakes, and reservoirs (phosphorus, total, µg/L; chlorophyll-a, µg/L; Secchi depth transparency, meters).

See
part 7050.0222, subparts 3 and 3a

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below

~~(31)~~(34) Turbidity, NTU

25 -- -- ~~1-5/25~~ NA -- -- -- --

EPA Action: Approved. Consistent with added explanatory language in 7050.0220, Subp. 2 that describes what USEPA primary and secondary drinking water standards do not apply to Class 1 waters. Under the SDWA, turbidity is regulated as a "treatment technique" standard and although numeric limits are used in the public water supply program, there is no established relationship between these finished water limits and ambient turbidity levels.

B. Metals and Elements.

2Bd	2Bd	2Bd	1B/1C	3A/3B	4A	4B	5
CS	**MS**	**FAV**	**DC**	**IC**	**IR**	**LS**	**AN**
(3) Arsenic, µg/L							
2.0	360	720	~~50~~ 10	--	--	--	--

EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for arsenic. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

(17) Mercury, total in edible fish tissue, mg/kg or parts per million

0.2 -- -- -- -- -- -- --

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

C. Organic Pollutants or Characteristics.

2Bd	2Bd	2Bd	1B/1C	3A/3B	4A	4B	5
CS	**MS**	**FAV**	**DC**	**IC**	**IR**	**LS**	**AN**
(2) Acetochlor, µg/L							
~~1.7~~ 3.6	86	173					
EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below							
(10) Benzene (c), µg/L							
~~11~~ 6.0	4,487*	8,974*	5	--	--	--	--
EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below							
(43) Haloacetic acids (c), µg/L (Bromoacetic acid, Dibromoacetic acid, Dichloroacetic acid, Monochloracetic acid and Trichloroacetic acid)							
--	--	--	60	--	--	--	--
EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for haloacetic acids. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).							
(51) Metolachlor							
23	271	543	--	--	--	--	--
EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below.							
~~(70)~~(73) Trihalomethanes, total (c), µg/L (Bromodichloromethane, Bromoform, Chlorodibromomethane and Chloroform)							
--	--	--	~~100~~ 80	--	--	--	--
EPA Action: Approved. This new criterion for the domestic consumption use equates to the newly promulgated Federal drinking water MCL and is therefore acceptable. There is no national EPA 304(a) human health water quality criterion for trihalomethanes. (63FR36742, July 7, 1998 preamble; WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).							

~~Note No. 1. FECAL COLIFORM ORGANISMS~~

D. *Escherichia (E.) coli* bacteria shall not ~~Not to~~ exceed ~~200~~ 126 organisms per 100 milliliters as a geometric mean of not less than five samples ~~in~~ representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed ~~2000~~ 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

7050.0220 Subpart 5a. Cool and warm water sport fish and associated use classes.

A. Miscellaneous Substance, ~~or~~ Characteristic or Pollutant.

2B/2C/2D CS	2B/2C/2D MS	2B/2C/2D FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(6) *Escherichia (E.) coli* bacteria, organisms/100 mL						
See item D	--	--	--	--	--	--

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

(7) Eutrophication standards for lakes, shallow lakes, and reservoirs (phosphorus, total, µg/L; chlorophyll-a, µg/L; Secchi depth transparency, meters).

See part 7050.0222, subparts 4, 4a, and 5

EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below

B. Metals and Elements.

2B/2C/2D CS	2B/2B/2C MS	2B/2B/2C FAV	3A/3B/3C IC	4A IR	4B LS	5 AN
(11) Mercury ~~µg/L~~, total in water, ng/L						
~~0.0069~~	~~2.4*~~	~~4.9*~~				
6.9	2,400*	4,900	--	--	--	--
(12) Mercury, total, in edible fish tissue, mg.kg or parts per million						
0.2	--	--	--	--	--	--

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

C. Organic Pollutants or Characteristics.

2B/2C/2D	2B/2C/2D	2B/2C/2D	3A/3B/3C	4A	4B	5
CS	**MS**	**FAV**	**IC**	**IR**	**LS**	**AN**
(2) Acetochlor, µg/L						
1.7	86	173				
EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below						
~~(6)~~(7) Benzene (c), µg/L						
~~114~~ 98	4,487*	8,974*	--	--	--	--
EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below						
(28) Metolachlor						
23	271	543	--	--	--	--
EPA Action: Approved subject to ESA consultation. A more detailed explanation for the basis of this EPA action appears in Section C below						

~~Note No. 3. FECAL COLIFORM ORGANISMS~~

D. *Escherichia (E.) coli* bacteria ~~Not to~~ shall not exceed ~~200~~ 126 organisms per 100 milliliters as a geometric mean of not less than five samples ~~in~~ representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed ~~2000~~ 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

7050.0220 Subpart 6a. Limited resource value waters and associated use classes.

A. Water quality standards applicable to use Classes 3C, 4A, 4B, 5, and 7.

7	3C	2B/2C/2D	4B	5
Limited resource value	**IC**	**IR**	**LS**	**AN**
(4) *Escherichia (E.) coli* bacteria, organisms/100 mL				
See item B	--	--	--	--

B. *Escherichia (E.) coli* bacteria shall not exceed 630 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

EPA Action: Approved. A more detailed explanation for the basis of this EPA action appears in Section C below

Below are selected excerpts of the the markup (stikeout/underline) version of Minnesota's WQS rules at Minn. R. ch. 7050.0222 (SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE: AQUATIC LIFE AND RECREATION). Revisions that were already documented above under ch. 7050.0220 were not reproduced below, therefore the excerpts below focus on the new eutrophication standards.

7050.0222 (SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE: AQUATIC LIFE AND RECREATION).
Subp. 2. Class 2A waters; aquatic life and recreation.

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Eutrophication standards for Class 2A lakes and reservoirs. See definitions in part 7050.0150, subpart 4, and ecoregion map in part 7050.0467.						
Designated lake trout lakes in all ecoregions (lake trout lakes support natural populations of lake trout, *Salvelinus namaycush*):						
Phosphorus, total	µg/L	12	NA	--	--	NA
Chlorophyll-a	µg/L	3	NA	--	--	NA
Secchi disk transparency	meters	No less than 4.8	NA	--	--	NA
Designated trout lakes in all ecoregions, except lake trout lakes:						
Phosphorus, total	µg/L	20	NA	--	--	NA
Chlorophyll-a	µg/L	6	NA	--	--	NA
Secchi disk transparency	meters	No less than 2.5	NA	--	--	NA

Additional narrative eutrophication standards for Class 2A lakes and reservoirs are found under subpart 2a.

EPA Action: Approved subject to ESA consultation. The new criteria were developed based on EPA's national guidance for developing nutrient criteria[3]. Minnesota's used EPA's national 304(a) recommendations for nutrients as a starting point which it then refined to develop criteria that more fully reflect conditions specific to regions within Minnesota, based on the identification of reference waters, use of predictive models, application of established nutrient/algal thresholds from the literature, and user perception. As such, the resulting criteria are consistent with EPA 304(a) recommendations and national guidance on developing regional and water body specific nutrient criteria.

Minnesota's approach utilized multiple nutrient criteria to account for different ecoregions across the state, as well as differences in water body type. A more detailed explanation for the basis for this action for each separate criterion can be found in Section C below.

Subp. 2a. Narrative eutrophication standards for Class 2A lakes and reservoirs.

A. Eutrophication standards are compared to data averaged over the summer season (June through September). Exceedance of the total phosphorus and either the chlorophyll-a or Secchi disk standard is required to indicate a polluted condition.

B. It is the policy of the agency to protect all lakes and reservoirs from the undesirable effects of cultural eutrophication. Lakes and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 2 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing nondegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake or reservoir resources, including, but not limited to:

1) the nondegradation requirements in parts 7050.0180 and 7050.0185;

(2) the phosphorus effluent limits for point sources, where applicable in chapter 7053;

(3) the requirements for feedlots in chapter 7020;

(4) the requirements for individual sewage treatment systems in chapter 7080;

(5) the requirements for control of stormwater in chapter 7090;

(6) county shoreland ordinances; and

(7) implementation of mandatory and voluntary best management practices to minimize point and nonpoint sources of nutrients.

C. Lakes and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 2 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using summer-average data and the procedures in part 7050.0150, subpart 5. Natural causes is defined in part 7050.0150, subpart 4, item N.

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3 *Nutrient Criteria Technical Guidance Manual, Lakes and Reservoirs*. First Edition. U.S. EPA, April 2000 (EPA-822-B00-001). http://www.epa.gov/waterscience/criteria/nutrient/guidance/lakes/index.html

D. When applied to reservoirs, the eutrophication standards in this subpart and subpart 2 may be modified on a site-specific basis to account for characteristics unique to reservoirs that can affect trophic status, such as water temperature, variations in hydraulic residence time, watershed size, and the fact that reservoirs may receive drainage from more than one ecoregion. Information supporting a site-specific standard can be provided by the commissioner or by any person outside the agency. The commissioner shall evaluate all data in support of a modified standard and determine whether a change in the standard for a specific reservoir is justified. Any total phosphorus effluent limit determined to be necessary based on a modified standard shall only be required after the discharger has been given notice of the specific proposed effluent limits and an opportunity to request a hearing as provided in part 7000.1800.

EPA Action: Approved subject to ESA consultation. The development of narrative and site-specific standards for nutrients is consistent with EPA guidance for nutrient criteria development and for WQS in general (see WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a)). Further, any site-specific modifications the State would make under this subpart would be adopted consistent with Minnesota's established administrative procedures and be submitted to EPA for review and approval under Section 303(c) of the CWA and 40 CFR §131.6. As such, the provisions in this subpart are consistent with the CWA and federal regulations and guidance

7050.0222 (SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE: AQUATIC LIFE AND RECREATION).
Subp. 3. Class 2Bd waters.

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Eutrophication standards for Class 2Bd lakes, shallow lakes, and reservoirs. See definitions in part 7050.0150, subpart 4, and ecoregion map in part 7050.0467.						
Lakes, Shallow Lakes, and Reservoirs in Northern Lakes and Forest Ecoregion						
Phosphorus, total	µg/L	30	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than 2.0	NA	--	--	NA
Lakes and Reservoirs in North Central Hardwood Forest Ecoregion						

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA
Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions						
Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA
Shallow Lakes in North Central Hardwood Forest Ecoregion						
Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA
Shallow Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions						
Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for Class 2Bd lakes, shallow lakes, and reservoirs are found under subpart 3a.

EPA Action: Approved subject to ESA consultation. The new criteria were developed based on EPA's national guidance for developing nutrient criteria[3]. Minnesota's used EPA's national 304(a) recommendations for nutrients as a starting point which it then refined to develop criteria that more fully reflect conditions specific to regions within Minnesota, based on the identification of reference waters, use of predictive models, application of established nutrient/algal thresholds from the literature, and user perception. As such, the resulting criteria are consistent with EPA 304(a) recommendations and national guidance on developing regional and water body specific nutrient criteria.

Minnesota's approach utilized multiple nutrient criteria to account for different ecoregions across the state, as well as differences in water body type. A more detailed explanation for the basis for this action for each separate criterion can be found in Section C below.

Subp. 3a.Narrative eutrophication standards for Class 2Bd lakes, shallow lakes, and reservoirs.

A.Eutrophication standards applicable to lakes, shallow lakes, and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley, Northern Minnesota Wetlands, or Driftless Area Ecoregions must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

B.Eutrophication standards are compared to data averaged over the summer season (June through September). Exceedance of the total phosphorus and either the chlorophyll-a or Secchi disk standard is required to indicate a polluted condition.

C.It is the policy of the agency to protect all lakes, shallow lakes, and reservoirs from the undesirable effects of cultural eutrophication. Lakes, shallow lakes, and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 3 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing nondegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake, shallow lake, and reservoir resources, including, but not limited to:

(1)the nondegradation requirements in parts 7050.0180 and 7050.0185;

(2)the phosphorus effluent limits for point sources, where applicable in chapter 7053;

(3)the requirements for feedlots in chapter 7020;

(4)the requirements for individual sewage treatment systems in chapter 7080;

(5)the requirements for control of stormwater in chapter 7090;

(6)county shoreland ordinances; and

(7)implementation of mandatory and voluntary best management practices to minimize point and nonpoint sources of nutrients.

D.Lakes, shallow lakes, and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 3 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using summer-average data and the procedures in part 7050.0150, subpart 5. "Natural causes" is defined in part 7050.0150, subpart 4, item N.

E.When applied to reservoirs, the eutrophication standards in this subpart and subpart 3 may be modified on a site-specific basis to account for characteristics of reservoirs that can affect trophic status, such as water temperature, variations in hydraulic residence time, watershed size, and the fact that reservoirs may receive drainage from more than one ecoregion. Information supporting a site-specific standard can be provided by the commissioner or by any person outside the agency. The commissioner shall evaluate all data in support of a modified standard and determine whether a change in the standard for a specific reservoir is justified. Any total phosphorus effluent limit determined to be necessary based on a modified standard shall only be required after the discharger has been given notice of the specific proposed effluent limits and an opportunity to request a hearing as provided in part 7000.1800.

EPA Action: Approved subject to ESA consultation. The development of narrative and site-specific standards for nutrients is consistent with EPA guidance for nutrient criteria development and for WQS in general (see WQS Handbook, Second

Edition, August 1994 (EPA 823-B-94-005a)). Further, any site-specific modifications the State would make under this subpart would be adopted consistent with Minnesota's established administrative procedures and be submitted to EPA for review and approval under Section 303(c) of the CWA and 40 CFR §131.6. As such, the provisions in this subpart are consistent with the CWA and federal regulations and guidance

7050.0222 (SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE: AQUATIC LIFE AND RECREATION).
Subp. 4.Class 2B waters.

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Eutrophication standards for Class 2B lakes, shallow lakes, and reservoirs. See definitions in part 7050.0150, subpart 4, and ecoregion map in part 7050.0467.						
Lakes, Shallow Lakes, and Reservoirs in Northern Lakes and Forest Ecoregions						
Phosphorus, total	µg/L	30	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than 2.0	NA	--	--	NA
Lakes and Reservoirs in North Central Hardwood Forest Ecoregion						
Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA
Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions						
Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA
Shallow Lakes in North Central Hardwood Forest Ecoregion						

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA
Shallow Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions						
Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for Class 2B lakes, shallow lakes, and reservoirs are found in subpart 4a.

EPA Action: Approved subject to ESA consultation. The new criteria were developed based on EPA's national guidance for developing nutrient criteria[3]. Minnesota's usd EPA's national 304(a) recommendations for nutrients as a starting point which it then refined to develop criteria that more fully reflect conditions specific to regions within Minnesota, based on the identification of reference waters, use of predictive models, application of established nutrient/algal thresholds from the literature, and user perception. As such, the resulting criteria are consistent with EPA 304(a) recommendations and national guidance on developing regional and water body specific nutrient criteria.

Minnesota's approach utilized multiple nutrient criteria to account for different ecoregions across the state, as well as differences in water body type. A more detailed explanation for the basis for this action for each separate criterion can be found in Section C below.

Subp. 4a.Narrative eutrophication standards for Class 2B lakes, shallow lakes, and reservoirs.

A. Eutrophication standards applicable to lakes, shallow lakes, and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley, Northern Minnesota Wetlands, or Driftless Area Ecoregions must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

B. Eutrophication standards are compared to data averaged over the summer season (June through September). Exceedance of the total phosphorus and either the chlorophyll-a or Secchi disk standard is required to indicate a polluted condition.

C. It is the policy of the agency to protect all lakes, shallow lakes, and reservoirs from the undesirable effects of cultural eutrophication. Lakes, shallow lakes, and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 4 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing

nondegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake, shallow lake, and reservoir resources, including, but not limited to:

(1)the nondegradation requirements in parts 7050.0180 and 7050.0185;

(2)the phosphorus effluent limits for point sources, where applicable in chapter 7053;

(3)the requirements for feedlots in chapter 7020;

(4)the requirements for individual sewage treatment systems in chapter 7080;

(5)the requirements for control of stormwater in chapter 7090;

(6)county shoreland ordinances; and

(7)implementation of mandatory and voluntary best management practices to minimize point and nonpoint sources of nutrients.

D. Lakes, shallow lakes, and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 4 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using summer-average data and the procedures in part 7050.0150, subpart 5. "Natural causes" is defined in part 7050.0150, subpart 4, item N.

E. When applied to reservoirs, the eutrophication standards in this subpart and subpart 4 may be modified on a site-specific basis to account for characteristics of reservoirs that can affect trophic status, such as water temperature, variations in hydraulic residence time, watershed size, and the fact that reservoirs may receive drainage from more than one ecoregion. Information supporting a site-specific standard can be provided by the commissioner or by any person outside the agency. The commissioner shall evaluate all data in support of a modified standard and determine whether a change in the standard for a specific reservoir is justified. Any total phosphorus effluent limit determined to be necessary based on a modified standard shall only be required after the discharger has been given notice of the specific proposed effluent limits and an opportunity to request a hearing as provided in part 7000.1800.

EPA Action: Approved subject to ESA consultation. The development of narrative and site-specific standards for nutrients is consistent with EPA guidance for nutrient criteria development and for WQS in general (see WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a)). Further, any site-specific modifications the State would make under this subpart would be adopted consistent with Minnesota's established administrative procedures and be submitted to EPA for review and approval under Section 303(c) of the CWA and 40 CFR §131.6. As such, the provisions in this subpart are consistent with the CWA and federal regulations and guidance

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C. Detailed analysis of the basis for EPA's actions for specific rule revisions referenced above.

1. Elements of Minnesota's Rules Being Approved by EPA Under Section 303 of the CWA but Not Subject to Consultation Under the ESA

1.1 Replacement of the Fecal Coliform Bacteriological Standard with an *E. coli* Standard.

Description of the State rule revision

In Minnesota, the vast majority of surface waters (all Class 2 waters) rivers, streams, lakes, ponds, and wetlands are protected for primary contact recreation (swimming and other activities where submersion in water is possible). The State's bacteria standards (currently fecal coliform) were developed to protect this use. In addition, the State applies a secondary contact recreation standard to Class 7 (Limited Resource Value Waters). The MPCA has adopted WQS rule revisions (see rule revision summary table above, Minn. R. Ch. 7050.0220 Subparts 3, 4, 5, and 6; Ch. 7050.0222 Subpart 2, 3, 4, and 5; and Ch. 7050.0227 Subpart 2) that replace their current fecal coliform standards with *E. coli* standards, based on EPA's 1986 recommended bacteria criteria[4]. The MPCA has adopted the *E. coli* standards shown in the table below. Minnesota's current fecal coliform standards are included for comparison.

Use	Water Classification and Type	Monthly geometric mean of not less than 5 samples, cfu/100ml		10% of values not to exceed cfu/100 ml	
		E. coli	Fecal Coliform	*E. coli*	Fecal Coliform
Primary Body Contact	Class 2A Trout waters	126	200	1260	400
	Class 2B, C, D Warm Waters	126	200	1260	2000
Secondary Body Contact	Class 7 Limited Resource Value Waters	630	1000	1260	2000

cfu = colony forming units
*Standard applicable from April 1 through October 31
**Standard applicable from May 1 through October 31

The following rule language changes pertaining to *E. coli* can be found in Ch. 7050.0220, Subparts. 3a, 4a, and 5a. (primary contact recreation under the Class 2 designation).

D. *Escherichia (E.) coli* bacteria ~~Not to~~ shall not exceed ~~200~~ 126 organisms per 100 milliliters as a geometric mean of not less than five samples ~~in~~ representative of conditions within any calendar month, nor shall more

4 USEPA, January 1986. *Ambient Water Quality Criteria for Bacteria – 1986*. (EPA440/5-84-002).

than ten percent of all samples taken during any calendar month individually exceed ~~2000~~ 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

The following rule language changes pertaining to *E. coli* can be found in Ch. 7050.0220, Subpart. 6a. (secondary contact recreation under the Class 7 designation).

B. *Escherichia (E.) coli* bacteria shall not exceed 630 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between May 1 and October 31.

Data and rationale submitted by State in support of rule revision

The data and rationale for the State's rule revisions are described in detail on pages 87-127 of Book III of the Statement of Need and Reasonableness (SONAR) dated July 2007. In addition, this section of the SONAR references 24 Exhibits, the most significant of which are listed below (all EPA regulations and guidance exhibits have been omitted from this list):

- Exhibit EC-3. *Fecal Contamination of Surface and Recreational Waters: Disease Transmission and Public Health Protection [DRAFT]*. Prepared by Tetra Tech EM Inc. for MPCA. September 30, 1997.
- Exhibit EC-8. *South Zumbro River in Rochester Fecal Coliform and E. coli Monitoring (2001) [DRAFT]*. Norman Senjem and Lee Ganske, MPCA. August 2003.
- Exhibit EC-10. *Water-Resources Investigations. Escherichia coli and Fecal-coliform Bacteria as Indicators of Recreational Water Quality.* Donna S. Francy, Donna N. Myers, and Kevin D. Metzker, U.S. Geological Survey Report #93-4083 (1993).
- Exhibit EC-11. *Surface Water Pathogen Study*. Prepared by Wenck Associates, Inc. for the Minnehaha Creek Watershed District. July 2003.
- Exhibit EC-12. *1984 Mississippi River Bacteria Study*. Gary L. Fandrei, MPCA. April 1985.
- Exhibit EC-14. *Fecal Coliform vs. E. coli Water Quality Standards*. Dave Christopherson, MPCA. May 2003.
- Exhibit EC-22. *Accommodating Change of Bacterial Indicators in Long Term Water Quality Datasets.* Curtis G. Cude, Oregon Department of Environmental Quality. J. of the American Water Resources Association (JAWRA), Vol. 41(1): pp. 47-54. February 2005.

EPA action

EPA approves Minnesota's newly adopted standards for *E. coli* for the protection of the recreational use. This approval is not subject to consultation under the ESA.

Basis for EPA Action

As with other water quality criteria, EPA allows modification of criteria values based on state or site-specific variables. In the case of *E. coli*, the following are areas where state-specific risk management decisions can be made as long as the resulting criteria are still protective of the use.

- For geometric mean values, states are allowed to select their own risk level with the EPA recommended range of 8 to 10 illnesses per 1000 swimmers for fresh waters. Minnesota's *E. coli* standard uses the more conservative 8 illnesses per 1000 swimmers.
- For the 10 percent maximum standard, EPA allows states considerable flexibility in the level chosen and in whether or how these values will be used[5]. The 10 percent maximum standard can vary depending on the level of recreational use. Levels of use are assigned different confidence limits. Minnesota's WQS rules currently apply a single primary contact recreation use (part of the Class 2 designation) to almost all waters of the state. They do not have a more detailed breakdown of the recreational use. Since the new *E. coli* standard applies generally across different levels of recreational use, the Minnesota standard equates to a confidence limit in the middle range between bathing beach areas and infrequently used waters.
- For the 10 percent maximum standard, the value can reflect the variability in local bacteriological data. EPA recommends a log standard deviation of 0.4 in lieu of actual state data that may indicate a different log standard deviation. The SONAR Book III document presents a detailed discussion of the MPCA's analysis of 3 datasets of paired fecal coliform and *E. coli* data. A state-specific log standard deviation of 0.8 was determined and used in the *E. coli* criteria calculation.

In the 1986 bacteria criteria document[4], EPA derived its recommended geometric mean bacteria criteria from epidemiologic data relating *mean* indicator organism density to swimming-associated gastroenteritis. The single-sample maximum criteria recommended in the guidance were calculated from the epidemiologic data by establishing a range of confidence levels based on the intensity of recreation use at a site and the log standard deviations of the indicator organism densities from the epidemiologic studies. EPA recommends that, "these single sample maximum levels should be recalculated for individual areas if significant differences in log standard deviations occur."

Consistent with EPA's recommendations, the MPCA determined the log standard deviations for the bacteria data collected in Minnesota. The calculated log standard deviation for the

5 See EPA's factsheet on the use of the single sample maximum. *Water Quality Standards for Coastal Recreation Waters: Using Single Sample Maximum Values in State Water Quaity Standards.* August, 2006 (EPA-823-F-06-013). http://www.epa.gov/waterscience/beaches/rules/singe-sample-maximum-factsheet.htm

Minnesota data is 0.8, compared to the 0.4 used by EPA to derive the 1986 criteria. Using the same risk of gastroenteritis of 0.8 used by EPA and the Minnesota-specific log standard deviation, Minnesota's 10% maximum standard is within the range of acceptable criteria. (see SONAR, Book III, Table III-21, page 107).

EPA has reviewed the MPCA's newly adopted *E. coli* standards and the supporting documentation provided in the SONAR Book III document and Exhibits and considers the decisions made and the justification provided to be consistent with the CWA, Federal regulations, and guidance.

1.2 Addition of Mercury Standard Measured as Total Mercury in Edible Fish Tissue (7050.0220 and 7050.0222).

Description of the State rule revisions:

The MPCA adopted a fish tissue mercury standard of 0.2 milligram of total mercury per kilogram (mg/kg) of fish tissue (or parts per million, ppm). to protect the human health fish consumption use component of Class 2 designated waters. The specific rule revisions can be found in Minn. R. ch. 7050.0220 and 7050.0222. This criterion is more stringent than the national 304(a) recommendation[6] of 0.3 mg/kg due primarily to Minnesota's higher fish consumption rate.

Minnesota currently has numeric water quality standards for mercury in both Minn. R. ch. 7050 and 7052 (rules related to the Lake Superior basin) that apply to total mercury concentrations in water. The following table lists the existing Class 1 and Class 2 numeric chronic mercury criteria.

Rule	Chronic Standard		Mercury Form	Basis	Medium
	Class 1 Drinking water	Class 2 Aquatic Life			
Ch. 7050 Statewide	2.0 µg/L (2000 ng/L)	0.0069 µg/L (6.9 ng/L)	Total mercury*	Human Health	Water column
Ch. 7052** Lake Superior Basin	NA	0.0013 µg/L (1.3 ng/L)	Total mercury*	Wildlife that eat fish	Water column

* Chemical Abstract Service (CAS) number for total mercury: 7439-97-6

** Ch. 7052 also list a human health-based criterion of 1.8 ng/L.

6 *Water Quality Criterion for Protections of Human Health: Methylmercury* (January, 2001) (EPA-823-R-01-001)

Minnesota also has a narrative standard in Minn. R. 7050.0150, subp. 7 that limits fish tissue contaminants to levels that allow safe consumption of fish as often as one meal per week. The original narrative standard ("*…nor shall there be any significant increase in harmful pesticide or other residues in the waters, sediments, and aquatic flora and fauna…*") dates to the first statewide water quality rule in 1967. In a 2003 rulemaking, the MPCA linked the level of contaminants that are acceptable and unacceptable in fish to Minnesota Department of Health (MDH) fish consumption advice by expanding on the original narrative standard in Minn. R. 7050.0150, subp. 7 (quoted below).

[Minn. R. 7050.0150] *Subp. 7.* ***Impairments of waters relating to fish for human consumption.*** *In evaluating whether the narrative standards in subpart 3, which prevent harmful pesticide or other residues in aquatic flora and fauna, are being met, the commissioner will use the residue levels in fish muscle tissue established by the Minnesota Department of Health to identify surface waters supporting fish for which the Minnesota Department of Health recommends a reduced frequency of fish consumption for the protection of public health. A water body will be considered impaired when the recommended consumption frequency is less than one meal per week, such as one meal per month, for any member of the population. That is, a water body will not be considered impaired if the recommended consumption frequency is one meal per week or any less restrictive recommendation such as two meals per week, for all members of the population. The impaired condition must be supported with measured data on the contaminant levels in the indigenous fish.*

The MPCA has now adopted a numeric fish tissue water quality standard to Minn. R. ch. 7050 that can be thought of as a quantification of the narrative standard. The proposed standard is based on EPA's *Water Quality Criterion for Protections of Human Health: Methylmercury* (2001). The new mercury standard of 0.2 ppm will apply to total mercury concentrations in edible fish tissue of any species of fish from Minnesota's waters. The intent of the new 0.2 ppm mercury standard is to augment the current numeric chronic standards by providing a more precise level of protection to fish consumers.

The MPCA has been using 0.2 ppm of mercury in fish, the same as the proposed standard, to assess surface waters for impairment beginning in 2002 (section 303(d) of the CWA). As noted, the 0.2 ppm value used to date is a numeric interpretation of the existing narrative standard. Average fish tissue concentrations in each waterbody tested are compared to the 0.2 ppm threshold. Exceedances of 0.2 ppm in fish were responsible for 67 and 58 percent of all impaired water listings on the 2004 and 2006 303(d) lists, respectively[7]. The listing of surface waters on the 303(d) list is mandated by the CWA and has regulatory and legal implications. Adopting this numeric value in rule provides more visibility and clarity for the 303(d) listing process for mercury.

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7 MPCA 2006. Clean Water Act Section 303(d) TMDL List [Draft], MPCA, St. Paul, MN, April 2006.

Data and rationale submitted by State in support of rule revision

The data and rationale for the State's rule revisions are described in detail on pages 7-30 of Book III of the Statement of Need and Reasonableness (SONAR) dated July 2007. In addition, this section of the SONAR references 8 Exhibits, the most significant of which are listed below:

- Exhibit -2: *Minnesota's Total Maximum Daily Load Study of Mercury [DRAFT]*. MPCA. June 1, 2006 ; pp.i-xiii, 1-57
- Exhibit M-3: *Sources of Mercury Pollution and the Methylmercury Contamination of Fish in Minnesota.* MPCA. August 2005
- Exhibit M-6: *Bioaccumulation Factors (BAF) for Mercury in Northern Pike and Walleye: Rivers*. Dennis Wasley (update by Bruce Monson), MPCA. September 30, 2005 (Updated: August 5, 2003)
- Exhibit M-7: *Bioaccumulation Factors (BAF) for Mercury in Northern Pike and Walleye: Lakes*. Memorandum from Bruce Monson, MPCA, to David E. Maschwitz, Dennis Wasley, and Gary Kimball, MPCA. July 30, 2003

EPA action

EPA approves Minnesota's newly adopted standards for methylmercury in fish tissue for Class 2 waters and specifically for the protection of the human health through fish consumption. This approval is not subject to ESA consultation.

Basis for EPA action

The state's proposed mercury criterion of 0.2 mg/kg is consistent with EPA's recommendation for mercury in fish tissue of 0.3 ppm (*Water Quality Criterion for Protections of Human Health: Methylmercury* (2001)), and further, is appropriately made more stringent based on the higher rate of fish consumption in Minnesota. The MPCA has used a fish consumption rate of 30 g/day since first promulgating human health-based numeric water quality standards for toxic pollutants in 1990. This rate is significantly higher than the national default rate of 17.5 g/day that was used for calculating the national mercury criterion of 0.3 mg/kg. The CWA authorizes and EPA has encouraged states to modify EPA's national criteria guidance based on state-specific data that may differ from national values.

The MPCA plans to continue to use the existing water column mercury criterion in setting effluent limits until alternative approaches are deemed practicable and feasible based on the recommendation of the mercury TMDL implementation stakeholder committee and any final mercury implementation guidance from EPA. The two primary reasons cited by the MPCA for not planning at this time to alter their approach to implementation are:

- Any new approach for implementing mercury controls at water point sources needs to be consistent with the recommendations of the mercury TMDL stakeholder advisory committee, EPA final guidance, and other NPDES/SDS and CWA rules; and,
- Simple use of a bioaccumulation factor (BAF) for mercury to translate the fish tissue criterion to a water concentration for effluent limits is problematic (Basically extremely site-specific and variable so that the use of one general BAF would not be possible. Alternatively, calculating BAFs for each site would be too resource intensive).

EPA agrees that this approach is reasonable and defensible. Aside from the practical reasons and lack of final EPA implementation guidance, the State's current chronic water column criterion of 6.9 ng/L is generally consistent with the new fish tissue criterion and is scientifically defensible. The mercury bioaccumulation factors (BAF) reported in the SONAR Book III (p. 28) for Minnesota surface waters range from 28,000 to 1,426,490. The BAF used by Minnesota to derive its statewide water column mercury criterion for the protection of human health of 6.9 ng/L is 42,653 which is within the range of reported BAFs for Minnesota surface waters. Consequently, the 6.9 ng/L water column criterion is scientifically defensible as a default water column criterion for waters outside the Great Lakes basin. The addition of the new fish tissue criterion will provide Minnesota with a powerful new tool to identify and address mercury in surface waters where the BAF assumptions of the statewide water column criterion are not accurate.

In summary, EPA has reviewed the MPCA's newly adopted fish tissue-based methylmercury standards and the supporting documentation provided in the SONAR Book III document and Exhibits and considers the decisions made and the justification provided to be consistent with the CWA, Federal regulations, and guidance.

1.3 Change in default classification for industrial use (Class 3) waters from 3B to 3C (7050.0430).

Description of the State rule revisions:

All surface waters in Minnesota are protected for industrial uses (Class 3A, 3B, 3C or 3D) under Minn. R. ch. 7050.0223. Most waters are currently assigned the 3B subclass by "default" (Minn. R. 7050.0430). Minnesota's newly adopted rules change the default industrial use protection classification from Class 3B (which covers the vast majority of surface waters since most have not been assessed and assigned to a specific subclass) to Class 3C. The specific rule language being revised is shown below.

7050.0430 UNLISTED WATERS

"All surface waters of the state that are not listed in part 7050.0470 and that are not wetlands as defined in ~~under~~ part 7050.0186, subpart 1a ~~7050.0130, item F~~, are hereby classified as Class 2B, ~~3B~~ 3C, 4A, 5, and 6 waters."

The narrative descriptions of the Class 3 water use subcategories (Class 3A, 3B, 3C), along with the Class 3 chloride and hardness water quality standards, were first adopted by Minnesota in 1967 and have remained largely the same since that time. These original standards were largely based on some early limited guidance from the Federal Water Pollution Control Administration.

Class 3 standards are intended to protect industrial piping and equipment from scaling and corrosion when surface waters are used by industries. This use subclass change will result in a concomitant change in two criteria designed to protect this use; chlorides and hardness. The Class 3 standards for chlorides and hardness are shown in the table below, along with the Class 2 chloride standard for comparison.

Class 3, Industrial Use Subclasses	Chlorides (mg/L)	Hardness (mg/L)
3A	50	50
3B. (most surface waters now)	100	250
3C, (most surface waters under this proposal)	250	500
Class 2, Aquatic Life and Recreation	230	none

Data and rationale submitted by State in support of rule revision

The data and rationale for the State's rule revisions are described in detail on pages 128-157 of Book III of the Statement of Need and Reasonableness (SONAR) dated July 2007. In addition, this section of the SONAR references 24 Exhibits, the most significant of which are listed below (all EPA regulations and guidance exhibits have been omitted from this list):

- UC-20: *Summary Comparison of Chloride Water Quality Standards for EPA Region V States, North.* MPCA.
- UC-21: *Minnesota Subregional Hydrologic Unit Code Chloride Data Summary* retrieved from the EPA STORET National Environmental Data System. Accessed: May 2006 (http://www.epa.gov/storet/).
- UC-22: Figure 5. – *Mean Hardness of Calcium Carbonate at NASQAN (National Stream Quality Accounting Network) Stations During 1975 Water Year from Quality of Rivers in the United States.* J.C. Briggs and J. F. Fricke. U.S Geological Survey. Report 78-200 (1977).

- UC-23: *Total Hardness of Minnesota's Ground Water 1992 - 1996* from Minnesota Pollution Control Agency's Baseline Water Quality of Minnesota's Principal Aquifers, 1992 - 1996.
- UC-24: *Minnesota Subregional Hydrologic Unit Code Total Hardness Data Summary* retrieved from the EPA STORET National Environmental Data System. Accessed: May 2006.
- UC-29: *Categorization of Surface Waters for Industrial Consumption for WPC-15*. George R. Koonce, Chief - Section of Industrial and Other Wastes, Division of Water Quality, MPCA. 1973.

The MPCA concludes that this rule revision is reasonable because it generally means a more defensible set of standards (chlorides and total hardness) and potential effluent limits applicable to: facilities that employ water conservation measures; and, facilities located in areas of the state that have waters naturally high in dissolved solids (especially in relation to the hardness standard).

EPA action

EPA approves Minnesota's rule revision to change the default industrial use subclass for unlisted waters. This approval is not subject to consultation under the ESA.

Basis for EPA action

EPA has not specifically developed criteria to protect industrial uses. As such, there are no federal industrial use chloride or hardness criteria that can be directly compared to the proposed Minnesota criteria for Class 3B and 3C waters. Several nearby states have criteria for chlorides and this proposed change will result in Minnesota's chloride criteria being more closely equivalent to the other states. None of the other Region 5 or neighboring states have standards for total hardness.

Minnesota's conclusion that this change can be made with little or no harm to the environment seems reasonable. The Class 1 (drinking water) and Class 2 (aquatic life) chloride standards are not being changed. Waterbodies with these designations will therefore be protected by the more stringent Class 1 or Class 2 related criteria (e.g., 230 mg/L chlorides). In addition, any waterbodies that were specifically designated as a particular Class 3 subclass as the result of site-specific analyses are not being changed by this rule modification. As a default, the use of the 3C subclass is more appropriate for most industrial uses, and for those where it is not, a site-specific change can be made (by utilizing UAAs or variances). This may be appropriate for industries that have more stringent water hardness requirements or for situations where domestic consumption uses may be affected due to higher than desirable hardness levels.

2. Elements of Minnesota's Rules Being Approved by EPA Under Section 303 of the CWA and Subject to Consultation Under the ESA

2.1 Eutrophication standards. (7050.0220 and 7050.0222)

Description of the State rule revisions:

Minnesota adopted eutrophication (nutrient) standards for lakes, shallow lakes, and reservoirs that included numeric criteria for total phosphorus (TP), Chlorophyll-a (Chl-a), and Secchi depth (SD) applicable to Class 2 waters (aquatic life and recreation). The specific rule language for these new standards can be found at Minn. R. ch. 7050.0220 and ch. 7050.0222. The State also added specific narrative eutrophication standards for Class 2 waters. The rule language changes being made to ch. 7050.0220 and 7050.0222 are presented in the table above in Section B.

Data and rationale submitted by State in support of rule revision

Minnesota's eutrophication standards include numeric criteria for total phosphorus (TP), Chlorophyll-a (Chl-a), and Secchi depth (SD) and were determined based on the weight of evidence from multiple data sets (MPCA data from reference sites, MPCA data from all waters, and EPA's data sets from all waters).

The Minnesota nutrient standards incorporate a significant amount of state data and analyses that reflect:

- Localized conditions in Minnesota, including the diversity within the state (ecoregions);
- Levels of TP, Chl-a and SD designed to protect a range of designated Class 2 beneficial uses; and
- Scientifically defensible methods and a very robust Minnesota water quality database upon which the proposed numeric standards are based.

The data and rationale for the State's rule revisions are described in detail on pages 1-97 in Book II of the Statement of Need and Reasonableness (SONAR) dated July 2007. In addition, this section of the SONAR references 52 Exhibits, the most significant of which are listed below (all EPA regulations and guidance exhibits have been omitted from this list):

- EU-1: *Minnesota Lake Water Quality Assessment Report: Developing Nutrient Criteria, Third Edition.* Prepared by Steven A. Heiskary and C. Bruce Wilson, MPCA. September 2005
- EU-6: *Detailed Assessment of Phosphorus Sources to MN Watershed: Under TMDL Master Contract*. Prepared by Barr Engineering. February, 2004.
- EU-8: Subject: *Lake Eutrophication Standards Development*. From Steven A. Heiskary, MPCA. Memo dated January 26, 1995.

- EU-9: *Phosphorus Strategy Task Force*. Water Quality Division, Minnesota Pollution Control Agency (MPCA). June, 1996.
- EU-19a: *Minnesota's Plan for Development of Nutrient Criteria*. MPCA. April, 2003.
- EU-19b: *Minnesota's Plan for Development of Nutrient Criteria*. MPCA. September 2006.
- EU-23: *Minnesota Ecoregions*. MPCA. 1993
- EU-24: *Analysis of Regional Patterns in Lake Water Quality: Using Ecoregions for Lake Management.* Steven A. Heiskary, C. Bruce Wilson, MPCA and David P. Larsen, EPA, Corvallis, Oregon. Lake & Reservoir Management. 1987.
- EU-27: *The Regional Nature of Lake Water Quality Across Minnesota: An Analysis for Improving*. Steven Heiskary and Bruce Wilson, MPCA. Journal of the Minnesota Academy of Science (JMAS). 1989. Vol 55(1); pp.71-7
- EU-28: *Minnesota Lake Water Quality Assessment Report, Second Edition: A Practical Guide for Lake Managers*. Steven A. Heiskary and C. Bruce Wilson, MPCA. May 1990.
- EU-29: *Lake Assessment Program: A Cooperative Lake Study Program*. Steven A. Heiskary, MPCA. Lake and Reservoir Management (LRM). 1989. Vol 5(1); pp.85-94.
- EU-30: *Developing Phosphorus Criteria for Minnesota Lakes*. Steven A. Heiskary, MPCA. and W. W. Walker, Jr. Lake and Reservoir Management (LRM). 1988
- EU-34: *Citizen Lake-Monitoring Program - 2001 Secchi Data Sheet*. MPCA. November 17, 2001
- EU-35: *Reconstructing Historical Water Quality in Minnesota Lakes from Fossil Diatoms.* Steven A. Heiskary, Edward B. Swain, and Mark B. Edlund. September 2004. No. 4
- EU-36: *Water Quality Reconstruction from Fossil Diatoms: Applications for Trend Assessment, Model: Verification, and Development of Nutrient Criteria for Lakes in Minnesota, USA*. Steven A. Heiskary and Edward B. Swain. MPCA Report. September 2002
- EU-37: *Shallow Lakes of Southeastern Minnesota: Status and Trend Summary for Selected Lakes*. Steven A. Heiskary, Howard Markus, and Matt Lindon. MPCA Report. July 2003
- EU-38: *Interrelationships Among Water Quality, Lake Morphometry, Rooted Plants and Related Factors for Selected Shallow Lakes of West-Central Minnesota.* Steven A. Heiskary and Matt Lindon. MPCA Report. March 2005.

EPA action

EPA approves Minnesota's newly adopted eutrophication standards for the protection of Class 2 waters. Approval of the Secchi depth standards is not subject to ESA consultation.

Approval of the total phosphorus and chlorophyll-a standards is subject to completion of ESA consultation with the FWS.

Basis for EPA action

The new criteria were developed based on EPA's national guidance for developing nutrient criteria[8]. Minnesota's used EPA's national 304(a) recommendations for nutrients as a starting point which it then refined to develop criteria that more fully reflect conditions specific to regions within Minnesota, based on the identification of reference waters, use of predictive models, application of established nutrient/algal thresholds from the literature, and user perception. As such, the resulting criteria are consistent with EPA's 304(a) recommendations and national guidance on developing regional and water body specific nutrient criteria.

Minnesota's approach utilized multiple nutrient criteria to account for different ecoregions across the state, as well as differences in water body type. A more detailed explanation for the basis for EPA's action for each separate criterion can be found in the table below.

Nutrient criterion	MPCA Basis*	EPA Action & Basis for Action
The following criteria apply in all ecoregions		
Lake trout lakes Total phosphorus < 12 µg/L Class 2A - 7050.0222, subp. 2 (lakes and reservoirs)	12 µg/L TP is the 50th % of assessed lake trout lakes (Table 6, page 58).	**Approved subject to ESA consultation.** Lake trout lakes are by definition minimally impacted and thus the 75th percentile (or lower) of lake trout lakes is protective.
Lake trout lakes Chl *a* < 3 µg/L Class 2A - 7050.0222, subp. 2 (lakes and reservoirs)	3 µg/L chl *a* is between the 50th – 75th % of assessed lake trout lakes (T. 6, p. 58).	**Approved subject to ESA consultation.** Lake trout lakes are by definition minimally impacted and thus the 75th percentile (or lower) of lake trout lakes is protective.
Lake trout lakes Secchi depth > 4.8 meters Class 2A - 7050.0222, subp. 2 (lakes and reservoirs)	4.8 meters is approximately the 50th % of assessed lake trout lakes (Table 6, p. 58).	**Approved.** Lake trout lakes are by definition minimally impacted and thus the 25th percentile (or higher) of lake trout lakes is protective.

8 *Nutrient Criteria Technical Guidance Manual, Lakes and Reservoirs*. First Edition. U.S. EPA, April 2000 (EPA-822-B00-001). http://www.epa.gov/waterscience/criteria/nutrient/guidance/lakes/index.html

Nutrient criterion	MPCA Basis*	EPA Action & Basis for Action
Stream trout lakes Total phosphorus < 20 µg/L Class 2A - 7050.0222, subp. 2 (lakes and reservoirs)	20 µg/L TP is lower than the 75th % of assessed stream trout lakes (Table 7, p. 72).	**Approved subject to ESA consultation.** Stream trout lakes are by definition minimally impacted and thus the 75th percentile (or lower) of lake trout lakes is protective.
Stream trout lakes Chl *a* < 6 µg/L Class 2A - 7050.0222, subp. 2 (lakes and reservoirs)	6 µg/L chl *a* is lower than the 75th % of assessed stream trout lakes (Table 7, p. 72).	**Approved subject to ESA consultation.** Stream trout lakes are by definition minimally impacted and thus the 75th percentile (or lower) of lake trout lakes is protective.
Stream trout lakes Secchi depth > 2.5 meters Class 2A - 7050.0222, subp. 2 (lakes and reservoirs)	2.5 meters is slightly below the 25 % of assessed stream trout lakes (Table 7, p. 72).	**Approved.** A secchi depth of 2.5 meters is halfway between "minor aesthetics" and "slight impairment" as determined by user perception in the NLF (Table 10, page 85), suggesting that the criterion would provide for water quality that is better than slightly impaired. Water quality does not necessarily need to be equal to or better than reference condition, but only that the uses are not impaired. Given that factors other than phosphorus may be responsible for reducing secchi depth, it is reasonable to consider uncertainty in the derivation of the secchi depth criteria.
Northern Lakes and Forests (NLF)		
Aquatic life and recreation Total phosphorus < 30 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes, shallow lakes and reservoirs)	The criterion corresponds to the 75th % of the MPCA and the EPA assessed databases**. This is reasonable because 30 µg/L is only slightly higher than the 75th % of the MPCA reference (28 µg/L) and the Pre-European (22 µg/L) databases, which should both reflect conditions of little or no impact.	**Approved subject to ESA consultation**. EPA agrees that the reasons provided by MPCA support the criteria. Using the 75th % from the assessed databases in this case is appropriate, as the quartiles of the 4 databases are similar, suggesting that the MPCA and EPA assessed lakes are minimally impacted.

Nutrient criterion	MPCA Basis*	EPA Action & Basis for Action
Aquatic life and recreation Chl *a* < 9 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes, shallow lakes and reservoirs)	10 µg/L is the level at which blooms are perceived to occur in this ecoregion (based on previous work). 10 µg/L as a mean summer results in bloom conditions less than 40% of the time (Fig 5b, page 23). 30 µg/L TP corresponds to 8-10 µg/L chl *a*. (Eq. 1& 4, page 19).	**Approved subject to ESA consultation.** EPA agrees that the reasons provided by MPCA support the criteria. In addition, the 75th % of the MPCA reference database supports a value of 10 µg/L.
Aquatic life and recreation Secchi depth > 2 meters Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes, shallow lakes and reservoirs)	User perceptions of "definite algal green/use slightly impaired" are associated with Secchi readings of 2.0-2.2 m (Table 10, page 85). The 75th percentile of reference lakes is 2.2 m (Figure 29). Secchi depth of 2.0 m corresponds to TP of 25 µg/L (Fig. 4b, P. 22 and Eq. 3, P. 19).	**Approved.** EPA agrees that the reasons provided by MPCA support the criteria.
Northern Central Hardwood Forests (CHF)		
Aquatic life and recreation Total phosphorus < 40 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes and reservoirs)	40 µg/L lies between the 25th % of the assessed databases (20-28 µg/L) and the 75th % of the reference database (50 µg/L).	**Approved subject to ESA consultation.** EPA agrees that the reasons provided by MPCA support the criteria. Given that there is some overlap between the reference and the assessed databases, it is appropriate to use a value below the 75th % of the reference database.
Aquatic life and recreation Chl *a* < 14 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes and reservoirs)	14 µg/L lies between the 25th % of the assessed databases (5-7 µg/L) and the 75th % of the reference database (22 µg/L). Based on user perception data, chl *a* > 20 µg/L is considered a nuisance bloom.	**Approved subject to ESA consultation.** EPA agrees that the reasons provided by MPCA support the criteria. Given that there is some overlap between the reference and the assessed databases, it is appropriate to use a value below the 75th % of the reference database.
Aquatic life and recreation Secchi depth > 1.4 meters Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes and reservoirs)	User perceptions of "definite algal green/use slightly impaired" in this region are associated with Secchi depth of 1.3 m (Table 10, page 85). Criteria is greater than 1.3 m and should therefore be protective.	**Approved.** EPA agrees that the reason provided by MPCA supports the criteria. In addition, the 75th % of the reference database (1.5 m) is approximately equal to the criterion.

Nutrient criterion	MPCA Basis*	EPA Action & Basis for Action
Aquatic life and recreation Total phosphorus < 60 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (shallow lakes)	Since there is no shallow lake reference database, the MPCA assessed shallow lakes database is appropriate as the basis for the criteria. The criterion is set at the 25th %.	**Approved subject to ESA consultation.** EPA agrees that the reasons provided by MPCA support the criterion. In addition, the 2003 study lakes database is consistent with the assessed shallow lakes database.
Aquatic life and recreation Chl *a* < 20 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (shallow lakes)	Since there is no shallow lake reference database, the MPCA assessed shallow lakes database is appropriate as the basis for the criteria. The criterion is set at the 25th %.	**Approved subject to ESA consultation.** EPA agrees that the reasons provided by MPCA support the criterion. In addition, the 2003 study lakes database is consistent with the assessed shallow lakes database.
Aquatic life and recreation Secchi depth > 1.0 meters Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (shallow lakes)	User perceptions of "high algal levels/no swimming" are associated with Secchi depth of = 1.0 m (Table 10, page 85).	**Approved.** 1.0 m is an acceptable criterion, given that user perception data suggest that the use is clearly impaired below this value. Also, because factors other than phosphorus may be responsible for reducing secchi depth, it is reasonable to incorporate some uncertainty in the derivation of the secchi depth criteria.
Western Corn Belt and Plains (WCP) and Northern Glaciated Plains (NGP)		
Aquatic life and recreation Total phosphorus < 65 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes and reservoirs)	The weight-of-evidence of the reference database and the assessment databases (for both the WCP and NGP) suggest a criterion range of 70-90 µg/L. The pre-European database for the NGP is consistent with this range. The pre-European deep lake database for the WCP suggests a criterion at the low end of this range.	**Approved subject to ESA consultation.** EPA agrees that the reasons provided by MPCA support the criterion.

Nutrient criterion	MPCA Basis*	EPA Action & Basis for Action
Aquatic life and recreation Chl *a* < 22 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes and reservoirs)	A concentration of 25 µg/L corresponds to TP of 60-70 µg/L. Also, user perception associates concentrations of 30 µg/L with nuisance blooms. Because pre-European data suggest that deeper lakes in this ecoregion have lower TP levels than do shallow lakes, deep lakes chl *a* levels should likewise be lower.	**Approved subject to ESA consultation**. EPA agrees that the reasons provided by MPCA support the criterion. Further, the weight-of-evidence of the reference database and the assessment databases also support a criterion of 22 µg/L.
Aquatic life and recreation Secchi depth > 0.9 meters Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (lakes and reservoirs)	User perception associated "definite algal green" and "use slightly impaired" in this ecoregion where secchi depth = 0.8 meters.	**Approve**. EPA agrees that the reasons provided by MPCA support the criterion. Further, the 25th % of the assessed databases also supports a criterion of 0.9 m. Given that factors other than phosphorus may be responsible for reducing secchi depth, it is reasonable to consider uncertainty in the derivation of the secchi depth criteria.
Aquatic life and recreation Total phosphorus < 90 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (shallow lakes)	The weight-of-evidence of the reference database and the assessment databases (for both the WCP and NGP) suggest a criterion range of 70-90 µg/L. The pre-European database for the NGP is consistent with this range. The pre-European deep lake database for the WCP suggests a criterion at the upper end of this range.	**Approve subject to ESA consultation**. EPA agrees that the reasons provided by MPCA support the criterion.
Aquatic life and recreation Chl *a* < 30 µg/L Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (shallow lakes)	A concentration of 30 µg/L corresponds to TP of 90-100 µg/L. Given the distribution of TP in these regions (shallow lakes), a chl *a* level of 30-35 µg/L could be considered. In addition, concentrations starting at ~30 µg/L are perceived as a nuisance bloom.	**Approve subject to ESA consultation**. EPA agrees that the reasons provided by MPCA support the criterion.

Nutrient criterion	MPCA Basis*	EPA Action & Basis for Action
Aquatic life and recreation Secchi depth > 0.7 meters Class 2Bd - 7050.0222, subp. 3 Class 2B - 7050.0222, subp. 4 (shallow lakes)	User perception associated "high algal levels" and "no swimming" in this ecoregion where secchi depth = 0.7 meters.	**Approve**. EPA agrees that the reasons provided by MPCA support the criterion. Further, 0.9 meters is generally consistent with the 25th-50th % of the assessed databases. Given that factors other than phosphorus may be responsible for reducing secchi depth, it is reasonable to consider uncertainty in the derivation of the secchi depth criteria.

Notes
* Unless otherwise indicated, all MPCA bases, including citations, are from the Minnesota Lake Water Quality Assessed Report: Developing Nutrient Criteria, September 2005.
**The term "Assessed database" is used for the MPCA and EPA databases that reflect all waters (i.e., not just reference lakes).

2.2 New standards for Acetochlor and Metolochlor (7050.0220 and 7050.0222).

Description of the State rule revisions:

The MPCA began development of WQS for Acetochlor and Metolachlor in response to a 2002 request from the Minnesota Department of Agriculture (MDA). Most numeric standards promulgated and adopted by the MPCA are based on aquatic life criteria published by EPA under Section 304(a) of the CWA. EPA has not yet developed 304(a) criteria for these two pesticides so MPCA undertook the development of the proposed standards using methods adapted for the most part from relevant EPA guidance[9] and from other relevant recently developed 304(a) criteria recommendations such as for atrazine[10].

The specific rule revisions are documented above in Section III.A. and III.B. and include changes to:

- Minn. R. ch. 7050.0220, subp. 3a, item C, subitem (2)
- Minn. R. ch. 7050.0220, subp. 4a, item C, subitem (2)
- Minn. R. ch. 7050.0220, subp. 5a, item C, subitem (2)
- Minn. R. ch. 7050.0222, subp. 2
- Minn. R. ch. 7050.0222, subp. 3
- Minn. R. ch. 7050.0222, subp. 4

9 *Guidelines for deriving numerical national water quality criteria for the protection of aquatic organisms and their uses*. U.S. EPA, 1985 (NTIS Document, PB85-227049) and *Final water quality guidance for the Great Lakes system; final rule*. Federal Register **60**:15366-15425.
10 *Ambient Aquatic Life Water Quality Criteria for Atrazine – Revised Draft*. U.S. EPA 2003 (EPA-R-03-023).

In developing the proposed WQS for Acetochlor and Metolachlor, MPCA staff determined criteria that protect, 1) aquatic life (toxicity-based criteria), and 2) human health (human health-based criteria). The MPCA did not determine criteria to protect wildlife due to the lack of sufficient data and the fact that these two pesticides are not highly bioaccumulative. The most stringent of the toxicity-based or human health-based values is typically adopted into the state rules to ensure protection of all Class 2 uses. For both of these herbicides, the MPCA adopted the toxicity-based criteria. The adopted standards for Class 2 waters are:

	Chronic Standard (CS)	**Maximum Standard (MS)**	**Final Acute Value (FAV)**
Acetochlor	3.6 µg/L	86 µg/L	173 µg/L
Metolachlor	23 µg/L	271 µg/L	543 µg/L

The acute toxicity standards (MS, which is equivalent to EPA's Criterion Maximum Concentration (CMC)) are based on toxicity data for aquatic animals; and the chronic standards (CS, which is equivalent to EPA's Criterion Continuous Concentration (CCC)) are based on chronic data for aquatic plants. Both herbicides appear to be mobile in most soils and moderately persistent in the environment, but their bioaccumulative potential in fish and wildlife is relatively low. The derived human health-based standards for both herbicides were less stringent than the plant toxicity-based chronic standards.

The MPCA revised the proposed chronic standard for acetochlor to 3.6 µg/L from 1.7 µg/L based on additional comments, methodology analysis, and data submitted by the Acetochlor Registration Partnership (ARP; Monsanto and Dow AgroSciences) during the public hearing/comment period. The acute criterion for acetochlor and both the acute and chronic criteria for metolachlor were not changed from what was originally proposed in July 2007.

Data and rationale submitted by State in support of rule revisions

The MPCA first presented the basis for their proposed standards in a January 17, 2006 document; *Minnesota Pollution Control Agency Outline of Basis for Draft Proposed Acetochlor and Metolachlor Class 2 Water Quality Standards*. The State then officially proposed these standards in July 2007. The data and rationale for the State's rule revisions are described in detail on pages 31-69 of SONAR Book III (July 2007). In addition, this section of the SONAR references 87 Exhibits, the most significant of which are listed below (all EPA regulations and guidance exhibits have been omitted from this list):

- H-2b: *Aquatic Life Criteria (Summary Sheet): Acetochlor*. MPCA. January 29, 1998.

- H-3: Subject: *Interim Water Quality Guideline Value for Metolachlor*. Letter from Dann D. White, MPCA to Ms. Michelle Puchalski, Minnesota Department of Agriculture. February 23, 1998
- H-4: *Acetochlor Supplement: Supplementary Information on Acetochlor and Metolachlor*. Angela L. H. Preimesberger and David E. Maschwitz, MPCA. November 7, 2005
- H-5: *Metolachlor Supplement: Supplementary Information on Acetochlor and Metolachlor*. Angela L. H. Preimesberger and David E. Maschwitz, MPCA. November 8, 2005
- 26 Date Evaluation Records from EPA's Office of Pesticide Programs.
- Numerous independent published research studies on the toxicity of acetochlor or metolachlor on specific species.

In response to the public hearings that were held in August and September of 2007 and the public comment period that ended on October 3, 2007, the State received numerous comments mainly on the proposed acetochlor standard. The following two documents were submitted by the ARP in addition to some new data and references to six published studies that were not considered by the State.

- Giddings, J.M., September 10, 2007. *Review of Proposed Plant-Based Acetochlor Class 2 Water Quality Standard for Minnesota.* Compliance Services International.
- Gensemer, R.W., October 3, 2007. *Scientific Peer Evaluation of "Review of Proposed Plant-Based Acetochlor Class 2 Water Quality Standard for Minnesota".*

The MPCA documented their response to these comments and new information in the following two documents.

- October 3, 2007 MPCA Staff Post-Hearing Response to Public Comments
- October 10, 2007 MPCA Staff Final Response to Public Comments

The methodologies used by the MPCA to develop toxicity-based, human health-based and wildlife-based standards, and bioaccumulation factors are described in Minn. R. ch. 7050.0218, subparts 4-9 and in MPCA's *Guidelines for the Development of Surface Water Quality Standards (2000)*. Due to the lack of complete and detailed guidance on developing criteria based on plant toxicity, MPCA utilized and adapted their own procedures as well as utilized portions of EPA's draft criteria guidance for atrazine and the 1985 Guidelines[9] .

EPA action

EPA approves Minnesota's newly adopted acetochlor and metolachlor standards for the protection of Class 2 waters. This approval is subject to completion of ESA consultation with the FWS.

Basis for EPA's action

States and tribes may establish numeric criteria using CWA section 304(a) criteria guidance, section 304(a) criteria guidance modified to reflect site-specific conditions, or other scientifically defensible methods. EPA guidance for deriving criteria for the protection of aquatic plants does not exist in detail and no national 304(a) criteria have been developed for acetochlor or metolachlor. Consequently, the State developed standards for these two pesticides based on scientifically defensible methods that were similar to EPA's approach for aquatic animals, but modified to address toxicity response of plants.[11] The State based their chronic standards on toxicity to aquatic plants and also used the draft EPA criteria document for atrazine[10] as a guide. The following discussion briefly captures the methodology the State used to derive standards for acetochlor and metolachlor and EPA's reaons for approving the standards.

Acetochlor

EPA supports the approach MPCA used to derive an acute standard of 86 µg/L as scienficially defensible. EPA also supports MPCA's approach for the chronic standards. MPCA originally proposed a chronic value of 1.7 µg/L, based on the 20th percentile species sensitivity of the maximum acceptable toxicant concentration (MATC). MPCA revised the proposed value in response to new data brought forth by the Acetochlor Regsitration Partnership and presented by Dr. Giddings (see above). The inclusion of all of the additional data would result in a 20th percentile species sensitivity MATC value of 4.3 µg/L. MPCA indicated that the new data did suggest a higher value, but did not fully agree with the data extrapolation approach used by the Acetochlor Regsitration Partnership, and indicated the original value should be adjustmented upward but not as high as 4.3 µg/L. MPCA concluded through best professional judgement that a value of 3.6 µg/L was appropriate. Given the availability and issues with the new data, EPA believes that MPCA's conclusion to adjust the acetochlor standard is appropriate and that generally the 20th percentile species sensitivity of the MATC is an acceptable approach for determining plant toxicity.

In summary, EPA finds that the data and analysis provided by MPCA demonstrate that the acetochlor standards are scientifically defensible and protective of the Class 2 uses of Minnesota surface waters.

Metolachlor

EPA supports the approach MPCA used (which was the same as for acetochlor) to derive an acute standard of 271 µg/L as scienficially defensible. EPA also supports the approach to derive a chronic standard as scienficially defensible. For chronic toxicity, MPCA used as a

11 *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses*. USEPA, 1985 (NTIS Publication PB85-227049)

starting point the 5th percentile most sensitive species EC50 to arrive at a value of 36 µg/L. MPCA indicated that this value should be lowered based on additional information:

- A chronic test result of 41 µg/L is available for fathead minnow (Metolachlor 88:12). This chronic value divided by a "safety factor" of '2' is 21 µg/L.
- An EC50 of 70 µg/L is available for coon tail (*Ceratophyllum demersum*), an important resident species. This EC50 is the third lowest after *S. capricornutum* and *L. gibba*. An estimated MATC of 23 µg/L for coon tail can be determined by dividing 70 µg/L by the mean of the five species-mean EC50/MATC ratios (3.027).
- The midway point (average) between the 5th percentile EC50 (36 µg/L) and the 20th percentile MATC (11 µg/L) is 23 µg/L.

In summary, EPA finds that the data and analysis provided by MPCA demonstrate that the metolachlor standards are scientifically defensible and protective of the Class 2 uses of Minnesota surface waters.

2.3 Revised criteria for Benzene (7050.0220 and 7050.0222).

Description of the State rule revisions:

The Minnesota Department of Health (MDH) is the lead agency in Minnesota for providing guidance on human health toxicity recommendations. A recent review by the MDH provided the MPCA with new toxicological inputs that form the basis for water quality criteria for benzene and several other chemicals. Only benzene and naphthalene resulted in human health criteria that were lower than the State's current water quality standards and therefore only these two standards were revised as part of the recently adopted rules. Only the chronic standards were updated; the acute toxicity-based final acute values and maximum standards were not change since the new data being incorporated into these revisions pertain to benzene's carcinogenicity.

The relevant revisions to the rule text are documented above in Section III.A and III.B and include changes to:

- Minn. R. ch. 7050.0220, subp. 3a, item C, subitem (10)
- Minn. R. ch. 7050.0220, subp. 4a, item C, subitem (10)
- Minn. R. ch. 7050.0220, subp. 5a, item C, subitem (7)
- Minn. R. ch. 7050.0222, subp. 2
- Minn. R. ch. 7050.0222, subp. 3
- Minn. R. ch. 7050.0222, subp. 4

July 30, 2003 The MPCA adopted standards for benzene in the 1990 revisions of Minn. R. ch. 7050. The same benzene chronic standard in Minn. R. ch. 7050 is also listed in Minn. R. ch.

7052. The newly adopted revisions to the benzene standards appear in Minn. R. ch. 7050 but are applicable statewide and will be used in the Lake Superior Basin.

Data and rationale submitted by the State in support of rule revisions

The data and rationale for the revised benzene standard are described on pages 70-82 of the SONAR Book III dated July 2007. In addition, this section of the SONAR references 11 exhibits, the most significant of which are listed below:

- HH-5: *Health Risk Limits for Groundwater Chemical Summary: Benzene, CAS# 71-43-2 [DRAFT]*. Minnesota Department of Health. November 24, 2004
- HH-8: *Aquatic Life Criteria: Benzene, CAS# 71-43-2 [PROPOSED]*. Minnesota Pollution Control Agency. February 1993, Revised January 2006

The MPCA used an updated cancer potency factor (q1*) of 0.055 mg/kg-d^{-1}. Minnesota's current benzene criteria are based on a q1* of 0.0290 mg/kg-d^{-1} . EPA's 2002 update to the benzene criteria based on the 2000 Methodology used a range of cancer potency factors (0.015 to 0.055 mg/kg-d^{-1}) but typically uses the upper end of this range (the most conservative) when listing benzene human health criteria. EPA's 2002 update to the benzene criteria also utilized an updated fish consumption value of 17.5 g/day. The MPCA uses a state-specific fish consumption rate of 30 g/day which recognizes the higher than national fish consumption in Minnesota.

The MPCA as a matter of policy compares human health-based chronic criteria values to criteria developed to protect aquatic organisms. The lowest or most stringent criteria values for each Class 2 designation are then promulgated into Minn. R. ch. 7050.0222 as chronic standards for that pollutant. The following table compares the current and revised values for benzene.

Benzene Parameters	Current Values	Revised Values*
Toxicity-based (Tox)		
All Class 2		
Maximum Standard	4,487 µg/L	4,487 µg/L
Final Acute Value	8,974 µg/L	8,974 µg/L
Chronic Criterion	114 µg/L	114 µg/L
Human Health-based (HH)		
All Class 2		
Reference Dose		0.004 mg/kg-d^{-1}
Cancer Potency Factor**	0.0292 mg/kg-d^{-1}	**0.055 mg/kg-d^{-1}**
Class 2A		
Bioaccumulation Factor l/kg	16	16
Chronic Criterion	9.7 µg/L	**5.4 µg/L**

Benzene Parameters	Current Values	Revised Values*
Class 2Bd		
Bioaccumulation Factor l/kg	4	4
Chronic Criterion	11 µg/L	**6.0 µg/L**
Class 2B/C/D		
Bioaccumulation Factor l/kg	4	4
Chronic Criterion	186 µg/L	**98 µg/L**
Final Water Quality Standards		
Maximum Standard	4,487 (Tox)	4,487 (Tox)
Final Acute Value	8,974 (Tox)	8,974 (Tox)
Chronic Standards		
Class 2A	9.7 µg/L (HH)	**5.4 µg/L (HH)**
Class 2Bd	11 µg/L (HH)	**6.0 µg/L (HH)**
Class 2B/C/D	114 µg/L (Tox)	**98 µg/L (HH)**

* Bolded values are being revised.
** Basis for chronic criterion; calculation with reference dose results in a higher value.

In the case of benzene, the human health values were adopted since they were the most stringent. In other words, since they protect the human health uses of Class 2 uses, the aquatic life use should also be protected since aquatic life is less sensitive to the toxic effects of benzene.

EPA action

EPA approves Minnesota's revised standard for benzene applicable to Class 2 designated waters. This approval is not subject to consultation under the ESA.

Basis for EPA's action

Numeric criteria adopted by Minnesota (Minn. R. ch. 7050.0220 and 7050.0222) were compared to EPA's human health criteria recommendations as well as Minnesota's adopted methods for deriving human health criteria (Minn. R. ch. 7050.0218). There currently are no national criteria recommendations for benzene for the protection of aquatic life; only for human health. Minnesota's criteria were considered to be consistent with the requirements of section 303(c) of the CWA and Federal regulations at 40 CFR 131 if : 1) the criteria were more stringent than EPA's numeric criteria recommendations for a specific pollutant and endpoint or, 2) if the criteria were derived in a manner consistent with Minnesota's adopted methods for deriving human health criteria and EPA's methodologies, even if the actual value of the criterion were less stringent than EPA's current national criteria recommendations.

The MPCA recalculated the chronic standard for benzene utilizing a revised cancer potency factor. The MPCA also utilized a fish consumption rate that is higher than the default national

rate used for all national 304(a) ambient water quality criteria recommendations. The MPCA as a matter of policy compares human health-based (HH) chronic criteria values to toxicity-based (Tox) criteria developed to protect aquatic organisms. The lowest or most stringent criteria values for each Class 2 designation are then promulgated into Minn. R. ch. 7050.0222 as chronic standards for that pollutant.

The recalculated human health-based benzene criteria were more stringent than the current criteria that were first adopted as WQS in 1990 for all Class 2 waters as shown in the following table. For comparison, EPA's recommended 304(a) criteria are also presented in the table.

Applicable Class 2 Subclass	Benzene Chronic Standards		EPA Human Health Criteria**	
	Current Values	Revised Values*	Water + organisms	Organisms only
Class 2A	9.7 µg/L (HH)	**5.4 µg/L (HH)**	22 µg/L	
Class 2Bd	11 µg/L (HH)	**6.0 µg/L (HH)**		
Class 2B/C/D	114 µg/L (Tox)	**98 µg/L (HH)**		510 µg/L

* bolded values are being revised

** This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case. EPA criteria based on human health carcinogenicity are usually expressed at the 10^{-6} risk level. The values in this table have been adjusted to the 10^{-5} risk level to make them comparable to Minnesota's criteria.

EPA has not developed a recommended 304(a) water quality criterion for benzene for either the protection of aquatic life primarily due to lack of sufficient data. According to EPA's "Gold Book" (and as published in the *Federal Register*, 45 FR 79318, November 28, 1980), available data indicated that acute toxicity to freshwater aquatic organisms occurs at concentrations as low as 5.3 mg/L. No data were available for determining chronic toxicity.

The revised criteria are all more stringent than Minnesota's current (previously adopted and approved) criteria as well as any EPA criteria recommendations. The Region has reviewed the MPCA's proposed revisions to the benzene criteria and considers the decisions made and the justification provided to be reasonable, defensible, and derived in a manner consistent with Minnesota's adopted methods for deriving human health criteria. These criteria were also derived consistent with federal regulations and guidance and were appropriately made more stringent based on more stringent input factors such as the state fish consumption rate.

2.4 Revised criteria for Naphthalene (7050.0220 and 7050.0222).

Description of the State rule revisions:

The Minnesota Department of Health (MDH) is the lead agency in Minnesota for providing guidance on human health toxicity recommendations. A recent review by the MDH provided the MPCA with new toxicological inputs that form the basis for water quality criteria for naphthalene and several other chemicals. Only naphthalene and benzene resulted in human health criteria that were lower than the State's current water quality standards and therefore only these two standards were revised as part of the recently adopted rules. Only the chronic standards were updated; the acute toxicity-based final acute values and maximum standards were not change.

The relevant revisions to the rule text are documented above in Section III.A and III.B and include changes to:

- Minn. R. ch. 7050.0220, subp. 3a, item C, subitem (10)
- Minn. R. ch. 7050.0220, subp. 4a, item C, subitem (10)
- Minn. R. ch. 7050.0220, subp. 5a, item C, subitem (7)
- Minn. R. ch. 7050.0222, subp. 2
- Minn. R. ch. 7050.0222, subp. 3
- Minn. R. ch. 7050.0222, subp. 4

The MPCA adopted standards for naphthalene in the 1994 revisions of Minn. R. ch. 7050. The same naphthalene chronic standard in Minn. R. ch. 7050 is also listed in Minn. R. ch. 7052. The newly adopted revisions to the naphthalene standards appear in Minn. R. ch. 7050 but are applicable statewide and will be used in the Lake Superior Basin.

Data and rationale submitted by the State in support of rule revisions

The data and rationale for the revised naphthalene standard are described on pages 70-82 of the SONAR Book III dated July 2007. In addition, this section of the SONAR references 11 exhibits, the most significant of which are listed below:

- HH-9: *Aquatic Life Criteria: Naphthalene, CAS# 91203*. MPCA. April 1991. Summary Sheets (4pgs) and Tables 1-5b
- HH-10: *Aquatic Life Criteria: Naphthalene, CAS# 91-20-3 [PROPOSED]*. MPCA. April 1991, Revised January 2006. Summary Sheets

July 30, 2003 The MPCA as a matter of policy compares human health-based chronic criteria values to criteria developed to protect aquatic organisms. The lowest or most stringent criteria

values for each Class 2 designation are then promulgated into Minn. R. ch. 7050.0222 as chronic standards for that pollutant. The following table compares the current and revised values for naphthalene.

Naphthalene Parameters	Current Values	Revised Values*
Toxicity-based (Tox)		
All Class 2		
Maximum Standard	409 µg/L	409 µg/L
Final Acute Value	818 µg/L	818 µg/L
Chronic Criterion	81 µg/L	81 µg/L
Human Health-based (HH)		
All Class 2		
Reference Dose	0.04 mg/kg-d	**0.02 mg/kg-d**
Cancer Potency Factor**	NA	NA
Class 2A		
Bioaccumulation Factor l/kg	77.61	77.61
Chronic Criterion	130 µg/L	**65 µg/L**
Class 2Bd		
Bioaccumulation Factor l/kg	38.80	38.80
Chronic Criterion	177 µg/L	88.5 µg/L
Class 2B/C/D		
Bioaccumulation Factor l/kg	38.80	38.80
Chronic Criterion	477 µg/L	238.5 µg/L
Final Water Quality Standards		
Maximum Standard	409 (Tox)	409 (Tox)
Final Acute Value	818 (Tox)	818 (Tox)
Chronic Standards		
Class 2A	91 µg/L (Tox)	**65 µg/L (HH)**
Class 2Bd	81 µg/L (Tox)	81 µg/L (Tox)
Class 2B/C/D	81 µg/L (Tox)	81 µg/L (Tox)

* Bolded values are being revised.

** Basis for chronic criterion; calculation with reference dose results in a higher value.

EPA action

EPA approves Minnesota's revised standard for naphthalene applicable to Class 2 designated waters. This approval is not subject to consultation under the ESA.

Basis for EPA's action

Numeric criteria adopted by Minnesota (Minn. R. ch. 7050.0220 and 7050.0222) were compared to EPA's human health criteria recommendations as well as Minnesota's adopted methods for deriving human health criteria (Minn. R. ch. 7050.0218). There currently are no national criteria recommendations for naphthalene for the protection of aquatic life. Minnesota's criteria were considered to be consistent with the requirements of section 303(c) of the CWA and Federal regulations at 40 CFR 131 if : 1) the criteria were more stringent than EPA's numeric criteria recommendations for a specific pollutant and endpoint or, 2) if the criteria were derived in a manner consistent with Minnesota's adopted methods for deriving human health criteria and EPA's methodologies, even if the actual value of the criterion were less stringent than EPA's current national criteria recommendations.

Based on a recent review by the MDH, the MPCA recalculated the chronic standard for naphthalene utilizing a revised Reference Dose (RfD). The MPCA also utilized a fish consumption rate of 30 g/day that is higher than the default national rate of 17.5 g/day used for all national 304(a) ambient water quality criteria recommendations. The MPCA as a matter of policy compares human health-based (HH) chronic criteria values to toxicity-based (Tox) criteria developed to protect aquatic organisms. The lowest or most stringent criteria values for each Class 2 designation are then promulgated into Minn. R. ch. 7050.0222 as chronic standards for that pollutant.

The recalculated human health-based criterion for Class 2A waters was more stringent than the current toxicity-based criterion for naphthalene that was first adopted as a WQS in 1994 as shown in the following table. The recalculated human health-based criteria for Class 2B/2Bd/2C/2D waters however were not more stringent than the current toxicity-based criteria and were therefore not revised. There are no EPA recommended 304(a) criteria for naphthalene.

Applicable Class 2 Subclass	Naphthalene Chronic Standards		EPA Human Health Criteria	
	Current Values	Revised Values*	Water + organisms	Organisms only
Class 2A	91 µg/L (Tox)	**65 µg/L (HH)**	**none**	**none**
Class 2Bd	81 µg/L (Tox)	81 µg/L (Tox)		
Class 2B/C/D	81 µg/L (Tox)	81 µg/L (Tox)	**none**	**none**

* bolded values are being revised

EPA has not developed a recommended 304(a) water quality criterion for naphthalene for

either the protection of aquatic life or human health primarily due to lack of sufficient data. According to EPA's "Gold Book" (and as published in the *Federal Register*, 45 FR 79318, November 28, 1980), available data indicated that acute toxicity to freshwater aquatic organisms occurs at concentrations as low as 2.3 mg/L, and chronic toxicity as low as 620 ug/L. Human health concentrations could not be calculated due to insufficient data.

The revised naphthalene human health-based criterion that the state adopted for Class 2A waters (65 ug/L) was more stringent than the current toxicity-based value of 91 ug/L. The Region has reviewed the MPCA's proposed revisions to the naphthalene criteria and considers the decisions made and the justification provided to be reasonable, defensible, and derived in a manner consistent with Minnesota's adopted methods for deriving human health criteria. These criteria were also derived consistent with federal regulations and guidance and were appropriately made more stringent based on more stringent input factors such as the state fish consumption rate.

2.5 Addition of New Class 1 Waters and Update List of Class 2A Trout Waters.

Description of the State rule revisions:

All surface waters in Minnesota that are used as a source for a public water supply are specifically listed in Minn. R. 7050.0470. The MPCA found that six waterbodies were either directly or indirectly used as source waters for public water systems but were never specifically designated as Class 1 or listed in Minn. R. 7050.0470. The WQS rule revisions add a Class 1 designation to these waters and bring Minnesota's rules in line with the actual uses provided by these waters. These six waterbodies were assigned the following use classifications: Class 1C, 2Bd, 3C, 4A, 4B, 5, and 6.

The MPCA also changed the drinking water use classification for a seventh waterbody from Class 1B to 1C. This waterbody, the St. James Mine Pit Lake in St. Louis County, was classified as a Class 1B, 2A, 3B, 3C, 4A, 4B, 5, and 6 water by virtue of its existing listing in the rule as a trout water. Based on the MDNR's revised list of trout lakes, St. James Mine Pit Lake is no longer a designated trout lake. The MPCA therefore changed the classification to the cool and warm water use classification. Given the fact that this lake is still used by the city of Aurora as a source of water for its public water system, St. James Mine Pit Lake was reclassified as a Class 1C, 2Bd, 3C, 4A, 4B, 5, and 6 water. This change will have no impact on the quality of Aurora's drinking water supply or on the aquatic life community. It is simply being made to establish the most accurate designation for this waterbody.

The following table summarizes the waterbodies being reclassified as Class 1 waters.

Waterbody	Basin	County	Lake ID No.	Minn. R. 7050.0470.
Community Water Systems				
Wright Lake	Red River	Otter Tail	56-0783-00	Subp. 3
Hoot Lake	Red River	Otter Tail	56-0782-00	Subp. 3
Ottertail River Diversion Channel	Red River	Otter Tail	NA	Subp. 3
St. James Mine Pit Lake	Lake Superior	St. Louis	69-0428-00	Subp. 1
Non-community Water Systems				
Bow Lake	Lake Superior	Cook	16-0211-00	Subp. 1
Gull Lake	Rainy River	Cook	16-0632-00	Subp. 2
Fenske Lake	Rainy River	St. Louis	69-0085-00	Subp. 2

The Class 2A use classification is a subgroup of the Class 2 aquatic life and recreational use assigned to some waters of the state so as to "*permit the propagation and maintenance of a healthy community of cold water sport and commercial fish and associated aquatic life and their habitats*" (Minn. R. 7050.0222, subp. 2). Class 2A waters are managed to support a trout or salmon sport fishery. The MPCA relies on the MDNR to determine which streams and lakes are suitable for the management of coldwater fisheries. The Class 2A waters referenced in Minn. R. 7050.0420 are based on the latest list adopted into rule by the MDNR (Minn. R. 6264.0050). The adopted rule revisions update Minn. R. 7050.0420 and make the necessary changes to the individual listings in Minn. R. 7050.0470 needed to bring the list of trout lakes up to date.

Ten lake trout lakes within the Boundary Waters Canoe Area Wilderness (BWCAW) that do not appear in Minn. R. 6264.0050 as designated trout waters are also being proposed for Class 2A water use classification. These lakes will be specifically listed in Minn. R. 7050.0470 and will be identified as Outstanding Resource Value Waters (ORVW), consistent with the provisions of Minn. R. 7050.0180, subp. 3. These reclassifications also coincide with MDNR's ongoing management objectives for these lakes.

The trout water listing changes in Minn. R. 7050.0470 are summarized below:

- Eight new trout stream listings are being added in the following counties – Cass (1),
- Chisago (2), Fillmore (3), Lake (1), Pine (1);
- One new stream trout lake listing in Lake County is being added;
- Ten lake trout lakes within the Boundary Waters Canoe Area Wilderness are being
- added to the list – Cook County (7), Lake County (2), St. Louis County (1);

- Three trout streams currently on the list are being removed – Fillmore County (2),
- Houston County (1);
- Two St. Louis County mine pit lakes currently on the list are being removed;
- The designated trout portion of 13 streams are being extended in the following
- counties – Cass (4), Dakota (1), Fillmore (3), Houston (2), Lake (1), Morrison (1),
- Pine (1);
- The designated trout segments of 21 trout streams are being shortened in the
- following counties, Blue Earth (1), Carlton (2), Cass (3), Cook (4), Houston (1),
- Itasca (3), Lake (3), Morrison (1), Pine (2), Roseau (1); and
- Modifications to the names of eleven trout streams are being made.

Data and rationale submitted by State in support of rule revision

The data and rationale for the State's rule revisions are described in detail on pages 169-176 of Book III of the Statement of Need and Reasonableness (SONAR) dated July 2007.
The MDNR periodically revises the official list of designated trout waters (Minn. R. 6264.0050, subparts 2 and 4) through a rulemaking process that incorporates information obtained from MDNR fisheries surveys, fishery management goals and objectives, public comments, and riparian land owner comments solicited in accordance with the provisions of Minn. Stat. § 97C.005. The list of trout waters cited in Minn. R. 7050.0420 was last updated on September 14, 1999. The most recent amended version of Minn. R. 6264.0050 was adopted by the MDNR on June 14, 2004. The newly adopted revisions to Minn. R. 7050.0470 reflect the additions and deletions of the trout water listings contained in the June 14, 2004, version of Minn. R. 6264.0050.

EPA action

EPA approves Minnesota's updated designations for both Class 1 and Class 2A waterbodies as specified in Minn. R. 7050.0470. This approval is not subject to consultation under the ESA.

Basis for EPA action

The Region has reviewed the Minnesota rule revisions and the supporting material provided in SONAR Book III and finds that these revisions are consistent with federal requirements at 40 CFR 131.10 because the adopted classifications appropriately reflect the existing and attainable uses for these waters. The classification of six waterbodies as Class 1 waters recognizes the existing use of these waters and is appropriate and consistent with 40 CFR 131.10. The re-classification of several waterbodies as Class 2A trout waters also recognizes the existing or highest attainable use for these waters and is appropriate and consistent with 40 CFR 131.10. All of these use reclassifications will result in a higher level of protection; the most stringent provided by Minnesota's WQS rules.

2.6 Reclassification of Several Stream Reaches as Limited Resource Waters (7050.0470).

Description of the State rule revisions:

Waterbodies or specific reaches of waterbodies in Minnesota are assigned certain water uses, either by being specifically listed in Minn. R. 7050.0470, "listed waters," or by being assigned use classification under the "unlisted waters" provisions of Minn. R. 7050.0430 and 7050.0425. The vast majority of waters in Minnesota fall into this later category and are assigned uses by "default". The MPCA further follows the CWA's presumption, until such time as their attainable uses are evaluated on an individual basis, that all waters should be "fishable and swimmable". All undesignated waters are therefore listed by default as Class 2B (that support cool or warm water sport or commercial fish and aquatic life) in addition to Classes 3C (Industrial Use), 4A(Agriculture and Wildlife), 4B(Agriculture and Wildlife), 5 (Aesthetic Enjoyment and Navigation) and 6 (Other Uses). Ten of the water bodies that were assessed were classified as Class 2B since they were never previously assessed and therefore fell under the "unlisted waters" provisions in Minn. R. ch. 7050.0430. Two of the waterbodies were previously designated as Class 2C (that support indigenous fish and aquatic life).

On occasion, requests are made of the MPCA by the regulated community, public or other groups to re-designate certain water segments. In addition, the MPCA itself, during their routine monitoring and assessments, may determine that certain waterbodies warrant consideration for a change to their designated uses. The MPCA conducted stream assessments for these waterbodies that were designed to meet the requirements of use attainability analyses (UAA) as required by 40 CFR §131.10 and the State rules at Minn. R. ch. 7050.0140, Subp. 8. Once adopted and approved by EPA these waterbody segments are specifically listed in Minn. R. ch. 7050.0470. Minn. R. ch. 7050.0140, Subp. 8 requires that

"The use attainability analysis must take into consideration those factors listed in Minnesota Statutes, section 115.44, subdivisions 2 and 3. The agency, in cooperation and agreement with the Department of Natural Resources with respect to determination of fisheries values and potential, shall use this information to determine the extent to which the waters of the state demonstrate that:

A. the existing and potential faunal and floral communities are severely limited by natural conditions as exhibited by poor water quality characteristics, lack of habitat, or lack of water; or

B. the quality of the resource has been significantly altered by human activity and the effect is essentially irreversible; and or

C. there are limited recreational opportunities, (such as fishing, swimming, wading, or boating), in and on the water resource.

The conditions in items A and C or B and C must be established by the use attainability analysis before the waters can be classified as limited resource value waters".

The State made the following classification changes. A more detailed description of these waterbodies can be found in the table below:

- Reclassification of ten water reaches from Class 2B (the default aquatic life and recreation designation because these water reaches were never previously assessed) to Class 7 limited resource value waters;
- Reclassification of two water reaches from Class 2C to Class 7
- Reclassification of the lower reaches of an existing Class 7 water in Renville County back to a Class 2B use classification; and
- Retention of the Class 2B use classification for a watercourse in Isanti County originally assessed for potential Class 7 reclassification. Technically, no use change or rule revision was made in this case.

Class 7 waters are protected to allow secondary body contact, to preserve the groundwater for use as a potable water supply, and to protect the aesthetic qualities of the water. Aquatic life and recreational uses in and on Class 7 water are limited due to essentially irreversible instream channelization and/or the lack of instream flows. As part of the multiple use classification systems used by Minnesota, Class 7 waters are also protected for industrial consumption use (Class 3C), agriculture and livestock uses (Class 4A and 4B), aesthetic enjoyment and navigation (Class 5) and Class 6, other uses.

Data and rationale submitted by State in support of rule revision

The data and rationale for the State's rule revisions are described in detail on pages 179-196 of Book III of the Statement of Need and Reasonableness (SONAR) dated July 2007. In addition, this section of the SONAR references 18 Exhibits, including the MPCA's Stream Assessment Worksheet (UAAs) for each waterbody. Additional comments regarding specific use changes were documented in MPCA's October 3, 2007 and October 10, 2007 response to comments that were submitted during the public hearings and public comment period that ended October 3, 2007.

EPA action

EPA is approving, subject to ESA consultation, all 12 of the use changes. The details and basis for these approval actions is presented in the table below. EPA's preliminary determination is that 11 of the 12 use changes will have no effect on listed species, and one, Sater's Creek, may affect, but is not likely to adversely affect the designated critical habitat for the Topeka shiner in the downstream Rock River. See the Biological Evaluation for a more detailed explanation for these determinations.

Basis for EPA action

Federal regulations at 40 CFR 131.10(j)(1) require a use attainability analysis (UAA) consistent with 40 CFR 131.3(g) whenever a state designates uses for a surface water that do not include protection of aquatic life and recreation in and on the water, consistent with Section 101(a)(2)

of the CWA. As specified above, the MPCA provided UAAs in the form of "Stream Assessment Worksheets" for all of the waterbodies being considered. The following table shows the specific changes being made, EPA's actions, and the basis for EPA's actions.

No.	Assessed Waterbody*	Existing or Potential Discharger	Present Use Class	New Use Class	EPA Action
1	County Ditch No. 45 (Branch Lateral 3) (T.115, R.36, S.4,5,8)	Golden Oval Eggs at Renville, MN, Renville County	Class 2B	Class 7	**Approved Subject to ESA Consultation**

Description: Golden Oval Eggs Cooperative is a significant industrial user and contributes treated wastewater to the Renville wastewater treatment plant (WWTP). In 2004, Golden Oval Eggs took over operation and maintenance from Renvillle of the batch reactor treatment facility located on their property and used to treat their wastewater before sending it to the Renville WWTP. Golden Oval made facility upgrades and proposed to independently treat the process wastewater and discharge the effluent to Branch Lateral 3 of County Ditch No. 45. The Golden Oval proposed point of discharge to Branch Lateral 3 would be approximately 1.6 miles upstream of the existing Renville WWTP outfall to this same ditch. The main stem of County Ditch No. 45 was originally adopted as a Class 7 water in 1981. The MPCA conducted the UAA in response to a June 2003 reclassification request made by a consultant representing Golden Oval Egg Cooperative and concluded that a Class 7 reclassification of this segment of County Ditch No. 45 is justified, given the degree of channelization and lack of water along this watercourse.

Basis for EPA Action: This represents the first time that this specific waterbody was assessed by the MPCA since its initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited by the lack of water (7Q10 low flow is 0 cfs) and lack of suitable habitat due to the degree of channelization. This ditch is also an upstream extension of an existing Class 7 water segment. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

2	County Ditch No. 45 (T.115, R.36, S.8,9,10,17)	Southern Minnesota Beet Sugar Cooperative at Renville, MN Renville County	Class 2B	Class 7	**Approved Subject to ESA Consultation**

Description: Southern Minnesota Beet Sugar Cooperative is a major industrial facility on the eastern side of the city of Renville. In December 2004, the facility obtained a permit allowing for a seasonal discharge (September through March) to County Ditch No. 45 at a point directly south and across Highway 212 from their factory location. The facility relocated this discharge from the previous location of Renville County Ditch No.37, at the recommendation of MPCA. The discharge consists of treated process and non-contact cooling wastewaters from the processing of sugar beets. The discharge permit contains variances from water quality standards for certain salinity related parameters. (It also contains restrictions on flows established by Renville County) MPCA staff has conducted a UAA on this ditch segment, and has concluded that a Class 7 reclassification of this segment of County Ditch No. 45 is justified, given the degree of channelization and lack of water along this watercourse.

Basis for EPA Action: This represents the first time that this specific waterbody was assessed by the

No.	Assessed Waterbody*	Existing or Potential Discharger	Present Use Class	New Use Class	EPA Action
	MPCA since its initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited by the lack of water (7Q10 low flow is 0 cfs) and lack of suitable habitat due to the degree of channelization. This use change was initiated by MPCA. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).				
3	Lateral Judicial Ditch No. 29 (T.110, R.33, S.6,7,18)	Evan, MN Brown County	Class 2B	Class 7	**Approved Subject to ESA Consultation**
4	Judicial Ditch No. 29 (T.110, R.33, S.6; T.111, R.33, S.21,22,28,31,32,33)		Class 2C	Class 7	**Approved Subject to ESA Consultation**

Description: Evan is a small town (population 91) in northwestern Brown County, Minnesota. The town has proposed a new recirculating sand filter wastewater treatment plant (WWTP) for the city. In August 2001, a consulting engineering firm for the town submitted to MPCA a reclassification request for the proposed receiving waters for the WWTP, which are a lateral ditch and the main stem of Judicial Ditch No. 29. The consultant also submitted a water quality standards variance request for the proposed discharge, which was granted to the town of Evan along with its NPDES permit which it received from the MPCA Board in April 2003. MPCA conducted the requested UAA in Oct. 2002, which recommended Class 7 reclassification for a reach extending approximately nine miles downstream of the proposed Evan outfall. The downstream end point of the proposed Class 7 reach is approximately one mile upstream of the beginning of a designated trout stream segment (Hindeman Creek).

Basis for EPA Action: Regarding Lateral Judicial Ditch No. 29, this represents the first time that this specific waterbody was assessed by the MPCA since its initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited due to: amount of channelization along the lateral and main stem ditches; lack of water (zero cfs) at the projected 7Q10 low flow conditions. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

Regarding Judicial Ditch No. 29, MPCA provided upon request additional information regarding the initial Class 2C designation that occurred about 40 years ago and an analysis of any existing aquatic life use. Federal regulations (40 CFR 131.10) and the CWA prohibit the removal of an existing use (i.e., one that existed or had the potential to exist as of November 28, 1975). There is no documentation in the State files clearly stating why the Class 2C designation was given to Judicial Ditch No. 29. The initial designation was not based on any formal UAA. At the time, the MPCA based these decisions on highway maps. Most of the Class 2C waters designated at the time were classified as "intermittent

No.	Assessed Waterbody*	Existing or Potential Discharger	Present Use Class	New Use Class	EPA Action

streams" on highway maps. The MPCA has a 1962 Brown County Highway map and a 1953 USGS quad map showing the degree of channelization along Judicial Ditch No. 29 that was present at the time. Old aerial photos for the area around Evan can be viewed on the MDNR website at http://www.dnr.state.mn.us/maps/landview.html . In conclusion, the documentation does not show that indigenous fish and aquatic life existed in Judicial Ditch No. 29 on or after November 28, 1975, and the condition of the ditch (i.e., degree of channelization) would not be conducive to supporting an aquatic life community. The aquatic life and recreational use potential of this ditch is severely limited due to: amount of channelization along the lateral and main stem ditches; lack of water (zero cfs) at the projected 7Q10 low flow conditions. The downstream endpoint of the proposed Class 7 reach is about one mile upstream of the beginning of a designated trout stream segment. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

	Unnamed Creek to Cedar Creek	Isanti Estates (mobile home park) Isanti County	Class 2B	Class 2B (no change)	**No EPA Action**

Basis for EPA Action: EPA is taking no action since this use designation was not changed by the State and consequently no revisions were made to the State's standards..

5	Judicial Ditch No. 4 (Upper portion only)	Lac Qui Parle Oil at Dawson, MN Lac Qui Parle County	Class 2B	Class 7	**Approved Subject to ESA Consultation**

Description: The Lac Qui Parle Oil Cooperative (formerly known as Dawson Ag. Services) is located along U.S. Highway 212 on the northwestern side of Dawson, Minnesota. The facility has been instructed by the MPCA and Minnesota Dept. of Agriculture to proceed with the preparation of a corrective action design for remediation of contaminated groundwater to surface water quality standards. The groundwater has been contaminated by past spills or leaks of agricultural fertilizers and petroleum products. Contaminated groundwater plumes extend to Judicial Ditch No. 4. In April 2003, a consultant to the facility submitted a reclassification request to the MPCA for Judicial Ditch No.4. MPCA conducted a UAA for Judicial Ditch No.4, and concluded that the upper portion of Judicial Ditch No. 4 be reclassified as Class 7, down to the point where the ditch enters the Dawson stormwater system, south of Highway 212. However, MPCA is retaining the Class 2B classification for the open channel on the eastern side of Dawason down to the West Branch Lac Qui Parle, based on observation of fish in the open channel.

Basis for EPA Action: This represents the first time that this specific waterbody was assessed by the MPCA since its initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited due to: degree of channelization; and limited watershed area above the Lac Qui Parle Oil Coop facility. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

No.	Assessed Waterbody*	Existing or Potential Discharger	Present Use Class	New Use Class	EPA Action
6	Unnamed Ditch (T.102, R.45, S.10,15)	Agri-Energy at Luverne, MN Rock County	Class 2B	Class 7	**Approved Subject to ESA Consultation**
7	Sater's Creek (T.102, R.45, S.9,14,15,16)		Class 2B	Class 7	**Approved Subject to ESA Consultation**

Description: Agri-Energy LLC is an ethanol production facility utilizing a dry mill corn processing, fermentation, and distillation process to produce nearly 22 million gallons of ethanol per year. The facility is located in Luverne, Mn. The facility discharges to an unnamed ditch reject water from a reverse osmosis process. This ditch flows to Sater's Creek, a tributary of the Rock River. MPCA conducted a UAA for the ditch and Sater's Creek in response to a chloride variance request submitted by the facility in February 2002. MPCA concluded that Class 7 applies, due to instream channelization and lack of water.

Basis for EPA Action: This represents the first time that these specific water segments were assessed by the MPCA since their initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited due to: Instream channelization. Lack of water. (Note: SONAR document does not state the MPCA rules used for this decision. E-mail communication with the MPCA on 9/17/07 states that the rule used was Chapter 7050.0140, Subpart 8:"A" and "C" and "B" and "C".) . MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

The downstream Rock River is designated as critical habitat for the Topeka shiner. Minnesota regulations and 40 CFR 131.10 require that downstream uses are protected and all standards must be met in downstream waters to protect the use. The Rock River is classified as Class 2B which is not being changed and is protective of aquatic life including the Topeka shiner. The Class 2 standards are expressly designed to meet the goals of the CWA and all are equal to or more stringent than EPA's national recommendations that are designed to protect aquatic life. A more detailed discussion of this can be found in the Biological Evaluation.

8	Unnamed Ditch to County Ditch No. 42 (T.112, R.29, S.4,5,6)	Winthrop, MN Sibley County	Class 2B	Class 7	**Approved Subject to ESA Consultation**

Description: The city of Winthrop constructed a waste stabilization pond for their wastewater treatment plant in the mid-1980's. The stabilization pond discharges seasonally to an unnamed ditch and joins with County Ditch No. 42 a short distance downstream of the city's former WWTP. Previously, the city operated a mechanical WWTP with a direct discharge to County Ditch No. 42. In 1981, County Ditch No. 42 was classified as a Class 7 water. MPCA initiated the UAA for the unnamed ditch. MPCA concluded that Class 7 applied, based on the high degree of channelization and lack of water.

Basis for EPA Action: This represents the first time that this specific waterbody was assessed by the MPCA since its initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an

No.	Assessed Waterbody*	Existing or Potential Discharger	Present Use Class	New Use Class	EPA Action
	unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited due to: degree of channelization; and limited watershed area above the Lac Qui Parle Oil Coop facility. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).				
9	Unnamed Ditch to (T.101, R.20, S.12)	Myrtle, MN Freeborn County	Class 2B	Class 7	**Approved Subject to ESA Consultation**
10	Unnamed Ditch to (T.101, R.20, S.12, 13)		Class 2B	Class 7	**Approved Subject to ESA Consultation**
11	Deer Creek (Co. Ditch No. 71) (T.101,R.19, S.18 T.101, R.20, S.13)		Class 2C	Class 7	**Approved Subject to ESA Consultation**

Description: Myrtle is a small town (population 63) in southeastern Freeborn County, about four miles north of the Minnesota/Iowa border. Individual on-site wastewater septic systems in Myrtle reportedly discharge to a field tile drainage system that conveys the partially treated wastewaters to two unnamed ditches that drain to Deer Creek. Deer Creek is also known as County Ditch No. 71. In December 2003, the city submitted to MPCA a reclassification request for the two ditches and Deer Creek. At that time, the city also submitted a variance request from water quality standards. MPCA conducted a UAA in response to these requests. MPCA concluded that Class 7 applied, due to extensive channelization and the lack of water.

Basis for EPA Action: Regarding the unnamed ditches to Deer Creek (No. 9 and 10), this represent the first time that these specific waterbodies were assessed by the MPCA since the initial Class 2B designations were established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited due to: degree of channelization; and lack of water. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

Regarding Deer Creek (County Ditch No. 71), MPCA provided upon request additional information regarding the initial Class 2C designation that occurred about 40 years ago and an analysis of any existing aquatic life use. Federal regulations (40 CFR 131.10) and the CWA prohibit the removal of an existing use (i.e., one that existed or had the potential to exist as of November 28, 1975). There is no documentation in the State files clearly stating why the Class 2C designation was given to County Ditch No. 71. The initial designation was not based on any formal UAA. At the time, the MPCA based these decisions on highway maps. Most of the Class 2C waters designated at the time were classified as "intermittent streams" on highway maps. The MPCA has 1965 Freeborn County Highway maps and a 1951 aerial photo of the Myrtle Minnesota area documenting the degree of channelization along Deer Creek. Old aerial photos for the area around Myrtle can be viewed on the MDNR website at

No.	Assessed Waterbody*	Existing or Potential Discharger	Present Use Class	New Use Class	EPA Action
	http://www.dnr.state.mn.us/maps/landview.html . In conclusion, the documentation does not show that indigenous fish and aquatic life existed in County Ditch No. 71 on or after November 28, 1975, and the condition of the ditch (i.e., degree of channelization) would not be conducive to supporting an aquatic life community. The aquatic life and recreational use potential of this ditch is severely limited due to: amount of channelization along the lateral and main stem ditches; lack of water (zero cfs) at the projected 7Q10 low flow conditions. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).				
12	County Ditch No. 11 (T.103, R.22, S.11,14,23,25,26)	Manchester, MN Freeborn County	Class 2B	Class 7	**Approved Subject to ESA Consultation**

Description: Manchester is a small town (population 81), located about five miles northwest of Albert Lea, another unsewered community in Freeborn County. On-site septic systems reportedly discharge to a series of drain tiles in the area, which in turn discharge to County Ditch No.11. In December 2003, the city submitted to MPCA a reclassification request for County Ditch No.11. At that time, the city also submitted a variance request from water quality standards. MPCA conducted a UAA in response to these requests. MPCA concluded that Class 7 applied, based on the high degree of channelization and the lack of sustaining stream flows due to the ditch's limited watershed size.

Basis for EPA Action: This represent the first time that this specific waterbody was assessed by the MPCA since its initial Class 2B designation was established by default under Minn. R. ch. 7050.0430 as an unlisted water. As such, this assessment is a more reliable indicator of existing and attainable uses and the new use classification represents an accurate assessment of the highest attainable use for this waterbody given the specific feasibility arguments consistent with 40 CFR §131.10(g). The aquatic life and recreational use potential of this ditch is severely limited due to: degree of channelization; and lack of sustaining stream flow due to the ditch's limited watershed size. The Class 7 criteria conditions in Minn. R. ch. 7050.0140, Subpart 8:"A and C" and "B and C" apply. MPCA has demonstrated that Class 2B conditions cannot be met on the basis of 40 CFR 131.10(g) factor (2).

	County Ditch No. 45 (T.114, R.36, S.7,18; T.114, R.37, S.13)	Renville, MN Renville County	Class 7	Class 2B	**Approved Subject to ESA Consultation**

Description: The part of County Ditch No. 45 that is being reclassified back to a Class 2B water use classification extends from the ditch's confluence with Sacred Heart Creek upstream to 770th Ave. (a Flora Township section line road between Sections 6 and 7, T.114N, R.36W). This is a distance of just under three river miles. At the 770th Avenue culvert crossing and continuing downstream, Counth Ditch No. 45 is a high gradient natural stream channel with a predominant stony, sand/silt stream bottom. At this location, the watercourse flows primarily through riparian wooded areas as it makes its way from higher elevations towards the Minnesota River valley below.

Basis for EPA Action: Biological sampling results indicate that there is a diverse assemblage of aaquatic organisms in the lower portions of County Ditch No. 45. EPA agrees with the MPCA's assessment that this water segment is and has the capability of supporting full Cleas 2 aquatic life uses.

* Public land survey legal description: T= Township; R= Range; S= Section

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3. Elements of Minnesota's Rules Not Subject to Review and Approval By EPA Under Section 303 of the CWA

Several of the revisions made to the Minnesota rules in Minn. R. ch. 7050 and 7053 do not constitute new or revised WQS. As such, EPA is not required under Section 303(c) of the CWA to review and approve such changes. Many of these revisions are non-substantive and correct grammatical errors, update references, or provide clarity to the State's rules. EPA notes the appropriateness of these changes, however, they do not constitute new or revised WQS requiring EPA review and approval. Therefore, EPA is taking no action on any of the items listed as "No EPA Action" in the comprehensive rule summary table found in Section III.A.

Some of the revisions being made to Minn. R. ch. 7050 and especially to ch. 7053 are more substantive but are not being considered changes to the State's WQS, and therefore are not being reviewed and acted upon under Section 303(c) of the CWA. These provisions in Ch. 7050 are also itemized in the comprehensive rule summary table found in Section III.A. The substantive revisions to ch. 7053 that are not being reviewed or acted upon in this Record of Decision are summarized below:

- The rule revisions being made to ch. 7053 pertain to setting effluent limits and treatment requirements for discharges to waters of the State. As such, the provisions in this chapter are not considered WQS subject to EPA review and approval under Section 303(c) of the CWA. The more significant additions to ch. 7053 include:
    - The stricking (deletion) of 7053.0215, Subp. 1a. (Total Phosphorus Effluent Limits) and addition of a new Part 7053.0255. (Phosphorus Effluent Limits for Point Source Discharges of Sewage, Industrial, and Other Wastes). This new part expands the application of a 1 mg/L phosphorus effluent limit to new and expanded discharges.
    - Addition of Part 7053.0265 (Discharge Restrictions Applicable to the Mississippi River from Rum River to St. Anthony Falls) which sets specific prohibited discharges for the subject waterbody.